
NEW YEAR NUMBER
CANADIAN
ARCHITECT
AND
BUILDER
1896
E. WILBY, Des & Del.
H. BEAUMONT, Sculptor
CAN. PHOTO-ENG. BU

It is often stated

that you can judge a man by the company he keeps. In like manner **a bath** may be judged by the class of people who use it. Here are **a few** who are using . . . .

"STEEL-CLADS"

Rideau Hall	Ottawa
Parliament Buildings . .	Toronto
Toronto University . . .	"
McMaster University . .	"
Trinity College	"
Wycliffe College	"
Toronto General Hospital .	"
St. Michael's Hospital . .	"
Grace Homeopathic Hospital	"
Queen's Hotel	"
Rossin House	"
Windsor Hotel	Montreal
Queen's Hotel	"
Hotel Cadillac	"
Beauport Insane Asylum .	Quebec

Gooderham Buildings . .	Toronto
Royal Victoria Hospital .	Montreal
Tecumseh House . . .	London
Belchamber House . . .	Sarnia
Government House .	Charlottetown
Residences of	
Hon. W. R. Meredith Hon. Justice Street Hon. Justice Osler Hon. A. M. Ross Christopher Robinson	Toronto
Sir J. H. Dawson . .	Montreal
Hon. L. H. Davies .	Charlottetown
J. R. Stratton, M.P.P. . .	Peterboro'

Factories	Canadian Agencies
TORONTO, CAN.	MONTREAL, QUE.
DETROIT, MICH.	QUEBEC, QUE.
NEW YORK, N.Y.	ST. JOHN, N. B.
LONDON, ENG.	VICTORIA, B. C.

The Toronto Steel-Clad Bath and Metal Co., Ltd. . . .

125 and 127 Queen St. East

A. G. BOOTH, Manager

TORONTO, CAN.

CANADIAN

ARCHITECT AND BUILDER

VOL. IX.

1896:
C. H. MORTIMER, Publisher.
TORONTO—CANADA

INDEX

ILLUSTRATIONS.

CANADIAN ARCHITECT AND BUILDER

Fine & Industrial Arts · Decoration · Furnishing · Construction · Sanitation · Engineering

VOL. IX.—No. 1 JANUARY, 1896 { PRICE 20 CENTS $2.00 PER YEAR.

INDEX TO ADVERTISEMENTS

in the "Canadian Architect and Builder."

Quebec Architects.

J. NELSON, A.R.C.A.,
Architect and Valuator,
Member Province of Quebec Association of Architects.
742 Notre Dame Street, - MONTREAL.
Bell Telephone 9305.

A. C. HUTCHISON, R.C.A.,
Architect and Valuator,
Member Province of Quebec Association of Architects.
181 St. James Street, - MONTREAL.
Telephone 858.

J. Z. RESTHER & SON,
ARCHITECTS
Members Province of Quebec Association of Architects.
Offices: Imperial Building, 107 St. James St., MONTREAL.
Telephone 1800.

A. T. Taylor, F.R.I.B.A., R.C.A. C. H. Gordon,
TAYLOR & GORDON, London.
ARCHITECTS
Members Province of Quebec Association of Architects
43 ST. FRANCOIS XAVIER ST. - MONTREAL
Telephone 2817.

ERIC MANN,
Architect and Valuator,
Member Province of Quebec Association of Architects.
30 ST. JOHN STREET, - MONTREAL.
Bell Telephone 2566.

H. STAVELEY,
ARCHITECT
Member Province of Quebec Association of Architects.
113 St. Peter Street, - QUEBEC.

PERRAULT & LESAGE,
(Joseph Perrault. Simon Lesage.)
Architects and Engineers.
Members Province of Quebec Association of Architects.
17 Place d'Armes Hill, - MONTREAL.
Telephone 1869.

A. F. Dunlop, R.C.A. J. C. A. Heriot, C. U.
DUNLOP & HERIOT,
Architects and Valuators,
Members Province of Quebec Association of Architects.
185 St. James Street, Temple Building,
Telephone 1627. - MONTREAL.

F. X. BERLINQUET,
Architect and Valuator,
Member Province of Quebec Association of Architects.
209 St. John Street, - QUEBEC.

A. RAZA,
Architect and Valuator,
Member Province of Quebec Association of Architects.
3 Place D'Armes Hill, - MONTREAL.
Telephone 961.

J. W. Hopkins, R.C.A. E. C. Hopkins.
J. W. & E. C. HOPKINS,
Architects and Valuators,
Members Province of Quebec Association of Architects.
145 St. James Street, - MONTREAL.
Telephone 959.

WRIGHT & SON,
Architects and Valuators,
Members Province of Quebec Association of Architects.
Sun Life Building - MONTREAL.

G. DE G.-LANGUEDOC,
Architect and Civil Engineer,
Member Province of Quebec Association of Architects.
Office: 180 St. James Street, - MONTREAL.
Telephone No. 1723.

L. R. MONTBRIANT,
Architect and Valuator,
Member Province of Quebec Association of Architects.
42 ST. ANDRE STREET, MONTREAL.
Telephone 6703.

Arthur Lamar. o o Chas. Metge.
LAMAR & METGE
Artistic STONE AND WOOD CARVERS
. . . . MODELLERS AND DESIGNERS
48½ St. Antoine Street, - - MONTREAL.

Plumbers

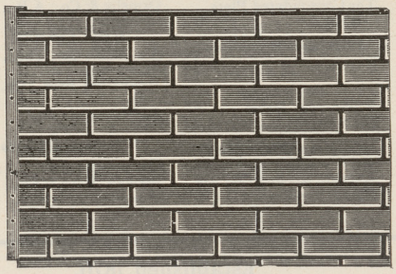
JAMES BALLANTYNE
153 St. Antoine Street - MONTREAL.
PRACTICAL PLUMBER,
GAS, STEAM AND HOT WATER FITTER.
Electrical and Mechanical Bell Hanging.
Moderate charges. Only experienced workmen employed. A trial solicited. Bell Telephone 2462.

E. DOUVILLE
137 B St. Urbain Street, - - - MONTREAL.
Practical Plumber and Roofer
Gas, Steam and Hot Water Fitter
GEOMETRICAL IRON WORK IN ALL ITS BRANCHES.
20 years' experience in business.

Legal.

FRANK DENTON, B.C.L., ANDREW DODS.
DENTON & DODS,
Barristers, Solicitors, Notaries, etc.
10½ Adelaide St. East, - TORONTO.
Money to loan on buildings in course of erection.

EQUAL TO ANY ● SUPERIOR TO MOST
EXCELLED BY NONE



WE MANUFACTURE
Metal Sidings Corrugated Iron
Metal Shingles Metal Building Fronts
o o Metal Ceilings o o
Special attention paid to Architects' designs.
Send for new Catalogue.
THE PEDLAR METAL ROOFING CO.
In answering mention this paper. OSHAWA, ONT.

ANDREW MUIRHEAD,
TORONTO
MANUFACTURER OF
VARNISHES
Of every description.
Wood Fillers, Paints & Painters' Supplies generally.
AGENT FOR
SAMUEL CABOT'S CELEBRATED MORTAR COLORS and CREOSOTE STAINS
OFFICE: **82 Bay St.** FACTORY: **St. Lawrence St.**
Warehouse: 15 and 17 Mincing Lane.

THE CONSOLIDATED
PLATE GLASS
COMPANY OF CANADA (Limited)
HEAD OFFICE:
73 and 75 Wellington Street West, TORONTO
BRANCHES:
MONTREAL, LONDON. OTTAWA.
338 St. Paul St.
FRANK J. PHILLIPS, Toronto, President.
WM. R. HOBBS, London, } Vice-Presidents.
ALEX. RAMSAY, Montreal, }
Correspondence solicited. Estimates Given
Special Discount to the Trade.

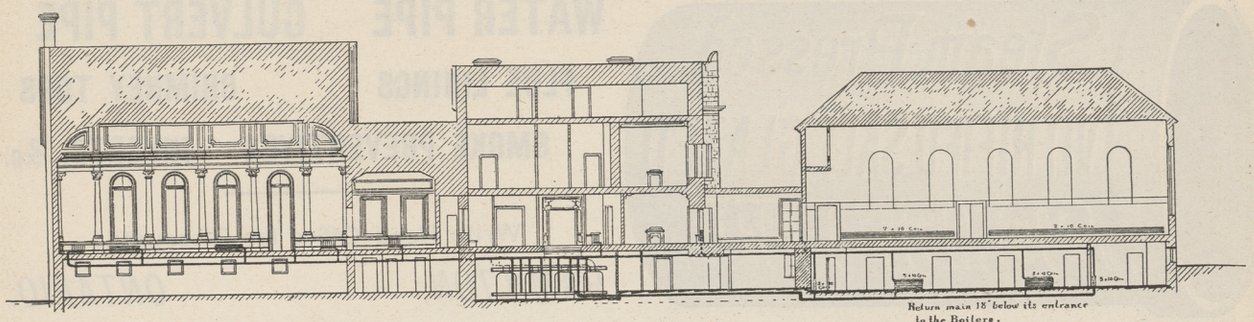
IMPORTANT NOTICE
Send for sample copy of THE NATIONAL BUILDER. Each number contains illustrative presentations of valuable information to the builder, old or young, experienced or inexperienced, together with one or more perspectives of plans of a dwelling, business or public building.
For ten years The National Builder has been published and furnished to subscribers at $3.00 per annum, we now reduce price to one dollar per year, thus placing this valuable journal within the reach of all and thereby increasing the circulation.
THE NATIONAL BUILDER PUB. CO.,
185 Dearborn Street, Chicago.

REMOVAL
Call and see my New Stock, New Design, New Shop and New Methods.
I am now located in suitable premises and would like a call from any one interested in
MODELING
STAFF WORK
FIBROUS PLASTER
PLASTERING
or anything pertaining thereto . . .
Wm. J. Hynes
Note New Address: 16 Gould St, Toronto.
Telephone 1609.

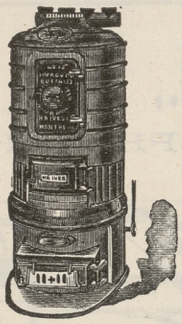
Please mention the CANADIAN ARCHITECT AND BUILDER when corresponding with advertisers.

If you want to . . . .
SELL ANYTHING
to the wholesale and retail hardware merchants and manufacturers
ANYWHERE
in Canada, you can reach them through the
CANADIAN HARDWARE MERCHANT
J. B. McLEAN CO., LTD.
PUBLISHERS
10 FRONT ST. E. - TORONTO.

PLAN SHOWING THE HEATING APPARATUS, OF GOVERNMENT HOUSE, OTTAWA ONT..



ECTION ON LINE X-X



PLAN OF BASEMENT

HOT WATER HEATING APPARATUS AT GOVERNMENT HOUSE, OTTAWA.

THE Governor General's residence at Ottawa is situated near the confluence of the Rideau and Ottawa rivers. Up to last autumn the heating apparatus consisted of *eight hot air furnaces, one hot water Beehive furnace* which supplied 840 feet lineal of 1 inch pipe in coils, and *twenty four stoves*, requiring the distribution of fuel to, and removal of ashes from many points. The hot water heating apparatus illustrated by the accompanying plans was constructed last autumn, to replace the said stoves and furnaces.

There are four "BUFFALO" Hot Water Heaters, manufactured by H. R. IVES & CO., Montreal, and the heating surface is direct throughout the apparatus. The flow and return mains are carried overhead along the basement corridors—the flow pipes only being shown on plans as the return pipes are similar in size and position. The ground floor mains, excepting in the kitchen wing, are separate from those of the upper floor. The mains running the long axis of the basement would probably be as well as if in one pair, instead of two, as at present, but with the branches as they are.

The heating surface is entirely direct, and is in large part cast iron radiators, which were in most instances found more suitable owing to the furniture interrupting the continuity of the wall surface.

The house was originally a villa purchased by the Government and added to from time to time, giving rise to a straggling plan, necessitating unusual arrangements of piping.

The front hall floor is a few feet above that of the furnace room, while the floor of the tennis court basement is lower than the furnace room floor. The tennis court basement is divided into bedrooms heated by five large box coils placed on the floor and circulating evenly and well, although the return main is fifteen inches lower where it connects with than its delivery into furnace.

Although the winter was exceptionally severe, and the situation of the house very exposed, the water returned at 130 F. in the most trying weather.

The plans and specifications were prepared and the works carried out under the direction of Mr. Thos. Fuller, chief Architect of the Department of Public Works, Ottawa, by Mr. David Ouimet, steamfitter, Montreal, P. Q.

[COPY.]

GOVERNMENT HOUSE, OTTAWA, May 9, 1895.

DEAR SIR: The Governor General desires me to say that he has much pleasure in informing you that the boilers and connected heating apparatus which you recently erected in the Government House have given much satisfaction. His Excellency has personally taken much interest in the working of the arrangement, and has watched it with attention. He can therefore the more confidently offer his testimony.

I remain, yours faithfully, W. T. G. HEWETT.

H. R. IVES, Queen Street, Montreal.

CANADIAN ARCHITECT AND BUILDER.

(Price of this Number, 35 Cents)

VOL. IX.—NO. 1. JANUARY, 1896 { PRICE 20 CENTS $2.00 PER YEAR.

—THE—

CANADIAN ARCHITECT AND BUILDER,

A Monthly Journal of Modern Constructive Methods,

(With a Weekly Intermediate Edition—The CANADIAN CONTRACT RECORD).

PUBLISHED ON THE THIRD THURSDAY IN EACH MONTH IN THE INTEREST OF

ARCHITECTS, CIVIL AND SANITARY ENGINEERS, PLUMBERS, DECORATORS, BUILDERS, CONTRACTORS, AND MANUFACTURERS OF AND DEALERS IN BUILDING MATERIALS AND APPLIANCES.

C. H. MORTIMER, Publisher,

Confederation Life Building, - TORONTO, CANADA.

Telephone 2362.

Branch Office: NEW YORK LIFE INSURANCE BUILDING, MONTREAL.

Bell Telephone 2299.

SUBSCRIPTIONS.

The CANADIAN ARCHITECT AND BUILDER will be mailed to any address in Canada or the United States for $2.00 per year. The price to subscribers in foreign countries, is $2.50. Subscriptions are payable in advance. The paper will be discontinued at expiration of term paid for, if so stipulated by the subscriber; but where no such understanding exists, will be continued until instructions to discontinue are received and all arrearages paid.

ADVERTISEMENTS.

Prices for advertisements sent promptly on application. Orders for advertisements should reach the office of publication not later than the 12th day of the month, and changes of advertisements not later than the 5th day of the month.

EDITOR'S ANNOUNCEMENTS.

Contributions of technical value to the persons in whose interest this journal is published, are cordially invited. Subscribers are also requested to forward newspaper clippings or written items of interest from their respective localities.

Subscribers who may change their address should give prompt notice of same. In doing so, give both old and new address. Notify the publisher of any irregularity in delivery of paper.

ONTARIO ASSOCIATION OF ARCHITECTS.

OFFICERS FOR 1895.

PRESIDENT	FRANK DARLING, Toronto.
1ST VICE-PRESIDENT	THOS. FULLER, Ottawa.
2ND VICE-PRESIDENT	J. GEMMELL, Toronto.
TREASURER	H. B. GORDON, Toronto.

COUNCIL:

D. B. DICK	Toronto.
W. A. EDWARDS	Hamilton.
F. J. ALEXANDER	Ottawa.
J. M. MOORE	London
W. R. STRICKLAND	Toronto

REGISTRAR AND LIBRARIAN:

W. A. LANGTON - Canada Life Building, Toronto.

PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.

OFFICERS FOR 1896.

PRESIDENT	A. C. HUTCHISON, Montreal.
1ST VICE-PRESIDENT	A. T. TAYLOR, Montreal.
2ND VICE-PRESIDENT	J. F. PEACHY, Quebec.
SECRETARY	J. VENNE, Montreal.
TREASURER	JOSEPH PERRAULT, Montreal.

COUNCIL:

CHAS. BAILLAIRGE	Quebec.
ROBT. FINDLAY	Montreal.
J. Z. RESTHER	Montreal.
A. H. LAPIERRE	Montreal.
G. E. TANGUAY	Quebec.
THEO. DAOUST	Montreal.

AUDITORS—A. J. FOWLER and C. CHAUSEE, Montreal.

TORONTO BUILDERS' EXCHANGE.

BOARD OF DIRECTORS:

GEO. OAKLEY, President.
JOHN ALDRIDGE, 1st Vice-President.
WM. PARK, 2nd Vice-President.
DAVID WILLIAMS, Treasurer.
JAS. CRANG.
WM. PEARS.
FRED. WAKEFIELD.
WM. BOOTH.
JAS. ISAAC.
H. LUCAS.
H. MARTIN.
THOS. CANNON, Jr.

JOHN L. PHILLIPS, Secretary.

TO OUR READERS, GREETING.

WITH this New Year Number the CANADIAN ARCHITECT AND BUILDER begins its ninth year of publication. This is the largest, and in many particulars is believed to be the best number of the journal that has yet been published. Placed side by side with the productions of earlier years, it is a gratifying evidence that the journal has maintained steady progress. An expression of our indebtedness and hearty appreciation is tendered to Mr. Ernest Wilby, of Buffalo, N. Y., formerly of Toronto, for the beautiful design which adorns the cover of this number, and to Mr. Henry Beaumont, sculptor, of Montreal, who modelled the design in clay so that a photograph giving the necessary relief effect might be obtained. The skill of both designer and sculptor is more effectively expressed in their work as reproduced in this number than by any words of ours. This is believed to be the first instance in which this method of illustration has been employed by a Canadian journal. A plaster cast taken from the clay model is being exhibited at the annual convention of the Ontario Association of Architects, now in session in the School of Practical Science, Toronto.

Our thanks are also due to the gentlemen who have contributed interesting and instructive articles to this number on a variety of subjects relating to architecture and building. We should be pleased to receive the assistance of a larger number of readers in this direction, not only on special occasions like the present, but throughout the year. In the multitude of counsellors there is said to be wisdom. If every reader would feel himself under obligation to give as well as to receive information, the pages of each number of this journal might be made much more helpful than they have hitherto been. May we not expect an improvement in this direction this year?

We appreciate also the support which we have received in the form of advertisements from manufacturers and dealers in all classes of materials employed in the erection of buildings, and without which it would be impossible to supply a publication of this character at such a small subscription price. The advertisements form a valuable directory to which the architect, engineer and contractor may at all times conveniently refer. Much care has been given to make the advertisement pages and attractive an interesting feature of this number, and we bespeak for them the careful examination of our readers.

HAMILTON ART STUDENTS' LEAGUE.

RT circles in Hamilton have been stirred into somewhat unwonted action this season by the organization of the "Hamilton Art Students' League," formed on the usual lines of such art clubs with the view of mutual improvement and help as well as the promotion of art and good fellowship among amateurs and professionals. It is not entirely a new departure, for some years since there existed a Sketch Club in the Ambitious City comprising most of the wielders of the brush and pencil then active, and being known as the "Black and White Club," holding its meetings in the studios of J. R. Seavey and exhibiting occasionally groups of sketches by the members.

The new movement began in November last at a largely attended meeting of ladies and gentlemen held at the Canadian Club, the prospect being so promising that without delay the organization was effected. Mr. J. R. Seavey, the artist, was elected President; Miss Clara Galbraith, Vice-President; Mr. C. L. Wright, Secretary, and Miss Tutty, Treasurer.

A commodious and centrally located atelier at 8 King street west was secured, lit by electricity. The main room being formerly a large photographic operating room with skylight, makes it convenient for both night and day work. There is room for a semi-circle of 25 members to sketch in the front row about the model throne.

A Board of control, consisting of active and ex-officio members, manages the League, while a House Committee, elected each month, supply models and attend to details. Two evenings each week are devoted to drawing and painting from life, the monthly dues being one dollar, which covers the expense of models, rent, etc. Associate members who have a vote in the elections, and the entree of the exhibitions, pay an annual fee of two dollars. No instructors are at present employed, but as the League is composed of many enthusiastic artists and students, the work is earnest and thorough. About thirty-five active members are enrolled; many of whom are ladies.

The first week in June the annual sketch exhibition will be held in the rooms, and in December the annual exhibition of finished work by the members, active and associate, at the Canadian Club.

HOUSE OF H. VINCENT MEREDITH, MONTREAL.

MONTREAL.

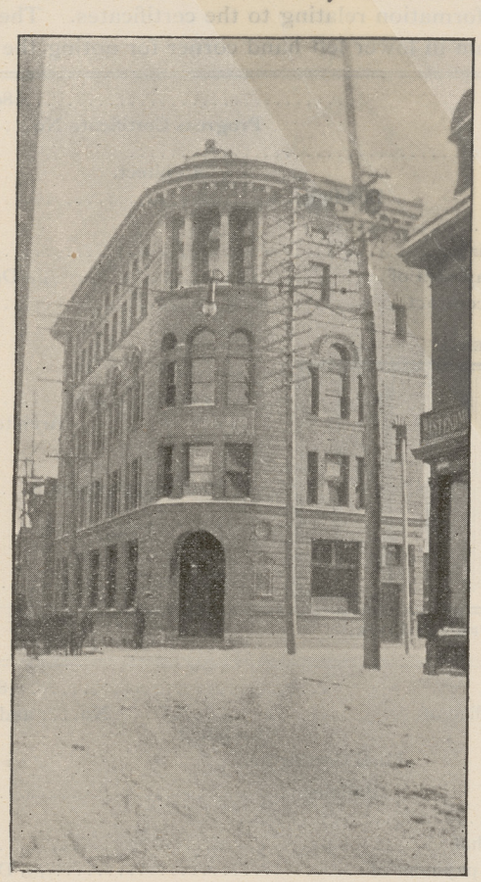
(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

It is evident to whoever has studied the development of architecture in this province, or at least in Montreal, that it has perceptibly retrograded during the last decade owing to the wholesale building by speculators, without the aid of the architect, or at least, intelligent architects. From the foundation of this country up to about thirty years ago we can easily trace the influence of the architecture of the older countries of Europe, especially of France in the first period and England in the second; while since then we have reflected all the mixed styles which have held sway in the United States, from the Neo-Grec to the revival of Colonial; or in other words we have built regardless of style at all. This is the case with the majority of structures of modern construction.

STORES ON ST. CATHERINE STREET, MONTREAL.

American architecture commenced to get a foothold here, with the erection of the Standard building on St. James street, which was built from the design of an American architect. Whether people were prejudiced against the architecture done by local architects is an open question, but it is nevertheless true that since the erection of that building many works of importance have been entrusted to American architects, as exemplified in the New York Life building on Place D'Armes, the Y. M. C. A. building on Dominion Square, and in the more recent example of the Board of

Trade building on St. Sacrament street, which seems to have had the effect of forcing our architects to study the architecture of our neighbors in order to meet the popular demand and craze of the day for Americanism.



MERCHANTS' BANK OF HALIFAX, MONTREAL.

BRANCH BANK OF MONTREAL, MONTREAL.

Westmount, formerly called Cote St. Antoine, is the locality for excellence where we will find in large numbers examplos of American domestic architecture, which, it cannot be denied, is especially fitted for this country.

Much difference of opinion will exist as to whether Montreal should be blamed or praised for its frequent change of styles, but it will be agreed that it is not so much the question of style we should advocate as that we should strive to obtain in whatever style we choose the highest possible excellence by studying the same thoroughly and intelligently.

Where architecture in Montreal has retrograded has been in the erection, during the last ten or twelve years, of dwelling houses on a grand scale by speculators, from the plans of an inferior class of architects, or more often still from the plans of builders. This class of building far outnumber the better class, which accounts for the distorted perspective one meets with in the streets of some localities.

A few illustrations are here given of some of the best buildings of recent erection, for photographs of which we are indebted to Mr. Cajetan Dufort, architect, of Montreal. Fig. 1 represents the residence of H. Vin-

BANK OF TORONTO, MONTREAL.

cent Meredith, at the corner of Pine avenue and Peel street, Mr. Edward Maxwell, architect, the work of which is finely executed. The walls are built in fine pressed brick, red in color and relieved with sand stone trimmings. Fig. 2 represents two stores with dwellings above, on St. Catherine street, near Mansfield street, Messrs. Cox & Amos, architects, built in sand stone of two different colours. Fig. 3 is the Merchants' Bank of Halifax at the corner of Notre Dame and Seigneurs streets, Mr. Edward Maxwell, architect, the ground floor of which is in olive green sandstone and the remainder in buff pressed brick. Fig. 4 is the branch of the Bank of Montreal, situated on the opposite corner from the last named building, entirely built of red sandstone. Fig. 5 represents the new building of the Bank of Toronto, at the corner of St. James and McGill streets. Mr. A. T. Taylor, F.R.I.B.A., is the architect of these structures.

OFFICE METHODS FOR ARCHITECTS.

A PROGRESSIVE firm of architects in Western Ontario, have by request, favored us with particulars of their office methods, including copies of their printed forms for various purposes. These forms and particulars are given herewith in the hope that they may prove of interest and value to the architects of the country. We shall be pleased to receive expressions of opinion upon them and suggestions for their improvement :—

No. 895 .....189..
$..... Progress Certificate No....
Ledger Folio.....
Building.....
.....
Client.....
Contractor.....
Trade.....

STATEMENT.

Amount of Contract...	$	$
.....		
.....		
" Previous certificates		
" Present "		
.....		
.....		
Total paid to date.....		
Balance in hand		$

No. 895 .....189....
$..... Progress Certificate No.....
Office of.....
Architect.
Building.....
To.....
..... hereby certify that .....
is or are entitled to a payment of .... /100 Dollars
.....on account of contract.....

STATEMENT.

Amount of Contract...	$	$
.....		
.....		
" Previous certificates		
" Present "		
.....		
.....		
Total paid to date.....		
Balance in hand		$

.....
Architect.
Received payment $.....
.....189....
.....

FORM OF PROGRESS CERTIFICATE BOOK.

No. 59 .....189..
$..... No.... and final
Ledger Folio .....
Final Certificate.
Building .....
.....
Client.....
Contractor .....
Trade.....

DETAILED STATEMENT.

Amt. of Orig'l Contract		$
" additional and extra work		
Total Amt. including add'l and extra work		
Amt. of deductions and work not executed		
Net amount		$
CREDITS.		
By cash paid per cert's	$	$
To balance due.....	$	
		$

No. 59 .....189....
$..... Office of..... No.... and Final
Architect.
Final Certificate.
Building.....
To.....
..... hereby certify that .....
.....entitled to a payment of...../100 Dollars
in full on contract and extra work .....
.....

DETAILED STATEMENT.

Amt. of Orig'l Contract		$
" additional and extra work		
Total Amt. including add'l and extra work		
Amt. of deductions and work not executed		
Net amount		$
CREDITS.		
By cash paid per cert's	$	
To balance due.....		
		$

.....
Architect.
Received the above amt. $.....
.....189....
.....

FORM OF FINAL CERTIFICATE.

No. 87 .....189..
$..... Ledger Folio.....
Order for Extra Work.
Building.....
.....
Client.....
Contractor .....
Trade.....
.....
Amount of Order $.....

No. 87 .....189....
$.....
Order for Extra Work.
Building.....
To.....
.....hereby extend the time for completion of contract.....days
and authorize you to accept .....
tender of $.....for the following additional work, viz. :—.....
.....
.....
.....$.....
.....Owner.

FORM OF ORDER FOR EXTRA WORK.

The certificates in both books are consecutively numbered and a ledger folio space is left on counterfoil to mark the page on which the building account is kept.

The perforated stubs are large enough to enter all information relating to the certificates. The memorandum in lower left hand corner for noting the amount of contract previously paid, etc., and balance due, if properly filled out will serve as a short general statement to the client. Contractors can receipt payment at the bottom of the certificate.

PROGRESS CERTIFICATE BOOK.

For convenience two kinds of certificate books are used, viz : progressive and final in conjunction with a "Contract Ledger."

FINAL CERTIFICATE.

The final certificate detailed statement somewhat differs from the "progress," a space being allotted for extras and deductions, which greatly facilitates obtaining

a balance where extras and deductions are concerned.

Some final books contain under credit column a complete list, month and dates of progress payments, but if the contractor's ledger is regularly posted it is unnecessary to repeat that work for owner's benefit.

ORDER BOOK FOR EXTRA WORK.

When extra work is desired by client or his architect, a price arranged and an order given beforehand will lessen the time spent on the final adjustment of account.

CONTRACTORS' LEDGER.

The Ledger consists of a 3 money column or bank ruled book. The top of page gives name of client, kind of building, street, location, in city or town. Across the page the name of the contractor is inserted, with sufficient space allowed between it and the next amount to admit the placing of amounts of his account, and so on with all parties engaged on the works.

It can be readily seen that in closing a building account the architect has a complete list, avoiding the tedious task of searching through the counterfoils of a score or more certificates, occasionally missing some account from final statement the commission on which, overlooked on each job during the year, might involve a considerable loss to an architect's bank account.

A second class of ledger is ruled and printed for noting in a condensed form the entire contracts relating to a job or structure. One column contains all of the information relating to the masons, another to the carpenter, etc. Payments made are quickly entered on the lower half of the page. It is unnecessary to refer to the contract or to the certificate book for information. If carefully kept, this book will save much valuable time, both for immediate and future reference.

DIARY.

This book may be had from any stationer, and ruled by hand to suit.

The first column denotes the hour or time occupied, next the name of client or building, remarks, ledger folio and money columns. The lower half of page may be used to keep draughtsman's time on special work. The time spent on each drawing is placed under the remarks column. The dollars and cents columns can be used for entering the cost of the drawing, or they may serve for noting expenses of every description, such as car fares, travelling expenses, etc., incurred while superintending buildings or other work.

As extensive and complicated work usually requires more time than at first estimated upon and extra work frequently is added, disputes with clients relating to charges for time spent on their orders can be satisfactorily adjusted. The record always speaks for itself, and if necessary the men who were engaged on the work can be called to verify their figures and time.

Very little time is wasted by an employee in making the entry, as nothing need be written but the description or number of work and the number of hours spent thereon.

The diary may also be used to mark the general business in, and posted into a ledger.

At the top of page are written name of owner, class of building and location. When drawings are taken out of the office a receipt taken at the time of delivery will greatly assist in bringing them back, and a history of the case may be obtained without delay or inconvenience.

SPECIFICATION COVER.

A neat form of keeping specifications clean and easily handled is by using the "Lawyer Brief Covers." The marginal references would then be made in the centre of the paper between each paragraph.

JOHN SMITH

House No.....Street.....City.

1895		MASON'S WORK.				$		$				CARPENTER.				$		$	
		John Brown										J. Jones							
Oct.	3	By Contract.....				1208	00	1208	00	Oct.	3	By Contract.....				2000	00		
Nov.	9	To Certificate...	186	400	00			808	00	Nov.	14	To Certificate...	189	100	00			1900	00
"	25	" "	194	125	00			683	00	"	7	By Extras.....				26	50	1926	50
Dec.	20	" "	205	500	00			183	00	"	16	" "				1	50	1928	00
										"	20	" "				18	66	1946	66
										Dec.	20	To Certificate...	202	500	00			1446	66

CONTRACTORS' LEDGER.

CLIENT .....

Building.....

CONTRACT FOR MASON WORK.

Contractor.....

Date of Completion..... Amount of Contract $.....

Payments to be made .....

Year

Month	Day	Dr. or Cr.	Ledger Folio	Certificates	Contract	Balance

CONTRACT FOR CARPENTER, ETC.

Contractor.....

Date of Completion..... Amount of Contract $.....

Payments to be made .....

Year

Month	Day	Dr. or Cr.	Ledger Folio	Certificates	Contract	Balance

FORM OF RULING FOR CONTRAETORS' LEDGER.

June Wednesday, 12, 1895. (163-202)

Hour	Client	Remarks	Ledger Folio	$	c.

FORM OF DIARY.

.....

When made Month	Day	Description of Drawing	When rec'd Month	Day	To Whom Delivered	Returned

FORM OF RECEIPT BOOK FOR DRAWINGS.

REMINISCENCES OF THE ARCHITECTURE OF SICILY.

By A. C. Hutchison, R. C. A.

The growing towers like exhalations rise,
And the huge columns heave into the skies.
—Pope.

THE Island of Sicily, so rich in its historical associations and in examples of the architecture of the different people that from time to time have been its rulers, from five or six centuries B. C. down to the present day, was visited in the month of February last, but in so hurried a manner as to only afford time to glance at buildings with whose history former study had made me somewhat familiar. Seeing many of these buildings, though but the skeleton of their former glory, was like renewing old acquaintances, and only served to whet the appetite and induce longing for an opportunity for more minute examination and leisurely study.

This island, which has had such a varied and chequered career during the 2,500 years with which history makes us acquaint, and has served under many and varied masters, some of whom, highly advanced in art, have left us monuments which, though now shorn of their original beauty, bear mute testimony to the status in art, skill in construction, and power of the people who erected them.

The imprint of the art of the different nations and people who from time to time have held sway on the island, and whose nationalities and art instincts were so widely different, being thus brought together within small geographical limits, enables one to study a great variety of styles, and the influence which in some cases one had on the other, without having to travel very far.

So many of the more important buildings of this island have been minutely described and illustrated in works which are in the hands of many of your readers, that it would be useless to attempt any detailed description in a short article. I will, therefore, only briefly describe the representative buildings of the different styles, and the impressions produced on coming in contact for the first time with the art of the Orient and Occident, where they met on this classic island.

Naturally Greek architecture will first claim attention, and if along with the examples of this art to be found in Sicily, we include those at Paestum in southern Italy, we find a group of buildings that for size and skill in construction, rival those of Greece itself, and for beauty of design are only surpassed by those of Athens. Greek architecture in Sicily and Italy, as in Greece, is illustrated in temples, while the constructive and engineering skill of the Greeks is shown in city walls, forts, and aqueducts, which remain to the present day. The principal groups of temples in the island are to be found at Selinunto, Segesta and Girgenti, and if we include with them the temples at Paestum, we have in all fourteen buildings illustrative of this architecture. Some of these buildings remain nearly entire, while others are in utter ruins and can only be judged by the remains of the columns, capitals and entablatures, which lie round the site of the temple of which they were a part. Syracuse, in the south east of the island, the largest and most powerful of the Greek cities, no doubt contained many temples commensurate with its wealth and importance, but so utter has been its destruction that, with the exception of a few columns of a temple incorporated in the cathedral of the modern city, and a few fragments near the seashore, nothing remains of its temple architecture.

The erection of the temples in Sicily, of which we have remains, dates from about 600 to 400 B. C., thus covering the best period of Hellenic art. Portions of the entablatures, with the sculptured metopes of several of the temples at Selinunto, were removed some years ago to the museum in Palermo, where they are now set up in a large hall. The sculptures on these metopes cover a period of about 200 years, and as the latest in date is about the time when Hellenic sculpture had attained to nearly its greatest excellence, we can in the study of them trace the development of sculpture from early beginnings to its highest development. The largest of the Sicilian temples is one at Selinunto—and if I am not mistaken the largest of all Greek temples. It measures about 370 feet long by 175 feet wide. The temple of Zeus at Girgenti only lacks a few feet of the same dimensions. The intercolumniations of the latter temple were so great that no single stone could be found of sufficient size to form the architrave. To overcome this difficulty, the columns on the sides of the building, instead of being detached, were attached to a wall from which they projected a little over half their diameter. The wall to which they were attached was carried up to the top of the capitals and formed a support for the architrave, which in each intercolumniation was composed of several pieces and overhung the wall about half a diameter. In the end or joint of each stone of the architrave is a square sinking three or four inches wide and deep, made in the form of the letter U ; these were probably used for placing the rope or sling in, with which the stones were hoisted to their position, the form and size of the recess allowing for the rope being withdrawn when the stone was set. The stone used in the Sicilian temples is coarse grained and incapable of being worked to a smooth surface. They appear to have been covered with a thin coating of stucco, which was probably painted. The ashlar forming the walls of the cells of some of the temples at Girgenti is so closely jointed that the point of a pen knife can not be inserted in the joint, and the stones appear to have been set without mortar or cement.

The temples at Selinunto and Paestum, standing, as they do, all alone in a solitary plain far removed from habitation or life, present a picture of desolation that is difficult to describe; while the four temples at Girgenti, though placed in the midst of more pleasing surroundings, being situate in line on the crest of a ridge along which once stood the massive city walls, and now surrounded by olive groves, stand solitary reminders of departed greatness.

Besides the temples which tell the story of the art of the Sicilian Greeks, there are remains of city walls, forts, quarries, etc., at different places on the island, which is evidence of their skill in engineering. The most extensive remains of this character are to be found at Syracuse, the most important of the cities of Magna

Graecia. Probably the most interesting of these ruins is that of Fort Euryelus, situate at the extreme west of the ancient city, on the apex of a ridge of rock from which the whole of the city could be overlooked. All that now remains of this ancient fort are the foundations and base of the four towers which formed the angles of the fort. These foundations are of the most massive description and composed of huge blocks of dressed stone. Extending from one of the towers, the wall which enclosed the south side of the city may be traced along the crest of a ridge which formed a natural defence on that side; this was also composed of large blocks of hewn stone. Below the fort itself the rock is honeycombed with passages wide enough to permit the passage of cavalry, and vaults to contain stores. These passages and the fort were cut off from the continuation of the rocky ridge by a deep moat cut through the solid rock. This moat was crossed in times of peace by a movable bridge supported in the centre on a pier of hewn masonry, which stands to the present day. About an hour and a half's walk from the fort, over a plain covered with piles of stone, presenting a most desolate appearance, we come to the remains of an extensive theatre. As we pass over the piles of stone in our walk, we can trace here and there the foundations of houses of the ancient city, and can define the width of some of its streets. Of the architecture of the theatre nothing remains. The foundation of the proscenium and stage and the semi-circular tiers of seats, cut in the rock on the face of a hill, can be distinctly seen. In rear of the theatre a small mill daily grinds corn, the power being two turbine wheels, driven by water, conveyed to them through one of the ancient Greek aqueducts.

Two large quarries, from which stone for the ancient city was obtained, are of great interest, on account of the extent of the excavations and the fantastic caves and grottoes that were formed in the rock as the stone was extracted. The marks of the picks used in cutting the rock (the same kind of tool as used in Sicily at the present day) are plainly to be seen.

Besides the theatre at Syracuse, there are the remains of a Greek theatre at Taormina on the east coast, but as the columns and walls now remaining have been restorations during the Roman period, they may be classed as Roman rather than Greek architecture.

In the long interval that elapsed between the overthrow of the Greek power and the advent of the Saracen in the island, an interval during which Carthage and Rome were in succession its rulers, followed by barbarians, ostrogoths, and then by Byzantine power, none of whom, except the Romans, left any imprint of their art, the remains of Roman art are very meagre; with the exception of the remains of a few arches of an aqueduct, an amphitheatre, a bath and small temple, and a few isolated columns at Syracuse, and the remains of Greek theatres restored and Romanized at Taormina and Catania, there is little else to tell that this great power ruled over Sicily.

With the advent of the Saracens in the 9th century, a new life was given to the dead, lifeless art that preceded their coming. New forms of construction and ornamentation were introduced; mosques took the place of the Christian churches which had superseded heathen temples. Of the mosques and other buildings of the Saracen period we have no remains by which to judge of the style. We can, however, judge somewhat of its spirit by the influence it exerted upon the Christian or Norman architecture which superseded it in the 11th and 12th centuries, and still later upon Gothic art.

In the 11th century the art of the east and west first came in contact in Sicily, and while the crescent went down before the cross, the change did not annihilate Saracenic art. Mosques gave place to churches, but the influence and spirit of eastern art remained, softening and modifying Christian architecture, represented by the heavy sombre Norman with which it first came in contact. Under this influence the heavy massiveness that characterizes Norman architecture, as practised in its Northian home, gives place to lighter forms and modes of ornamentation, and the dome takes the place of the semi-circular vault, or is used in conjunction with it. In the cathedrals of Palermo and Monreale, more particularly in the east ends, we find examples of this modifying influence in the forms of mouldings, and in the decorations of the plain surfaces of the walls and arches by the insertion of black marbles in geometrical forms. In a more marked degree we see the same influence in the church of St. John, near the Royal Palace, erected during the Norman period, and in which domes are the dominant feature. The church of La Matorana, near the centre of the city, is a curious mixture of Norman and Saracenic details. As a mosque occupied the site of the present church, the materials of it were no doubt used in the erection of the Christian building. Adjoining the church is a Norman chapel in which the nave is covered by these semi-circular domes, supported on six columns of marble, two of them taken from some heathen temple, two of Saracenic or Byzantine design, and the other two of Norman design; in each case the columns rest on Norman bases. The arches and domes of this chapel have been stripped of their mosiac, so that their construction is plainly seen.

In the royal palace, the Capella Palatena, also built in the Norman period, is one of the most interesting chapels to be seen anywhere. It consists of a nave with aisles, the east bay of nave being rather larger than the others, and surmounted by a dome. The whole of the walls, arches, vaults and domes are covered with the most beautiful mosaics, surpassing even those of St. Marks in their richness. These mosaics, with the details of the nave columns, the pointed arches, and the screens enclosing the choir, all indicate the preponderating influence of Saracenic art in this most beautiful chapel.

Gothic architecture scarcely affected Sicily. With the exception of the cathedrals at Monreale and Messina and one or two churches and part of the cathedral at Palermo, there are no examples of any note. Even in these examples Saracenic art is so interwoven with the gothic as to make it difficult or almost impossible to fix the date of erection by the architectural features, as can so readily be done in buildings of the Gothic period in France and Britain.

Of the buildings of the Renaissance I will not write. While there are a few good examples here and there, none of them are of any special note.

THE Court of Appeal at Toronto has recently given judgment sustaining a former judgment of the Ottawa courts in awarding damages to Mr. Brune, the contractor for the isolation hospital on Porter's Island, against the city of Ottawa, for breach of an implied contract on their part to return to the contractor the work in the same or in no worse condition than at the time of the suspension of the said work by the defendants.

WHAT A COUNTRY BUILDER SHOULD KNOW.

By F. T. H.

Semblant art shall carve the fair effect
And full achievement of thy great designs.
—Prior.

TALKING some time ago to a country builder, or rather to a man who styled himself a "builder and contractor," I was somewhat surprised to discover that he had but very little knowledge of the improvements made in building matters during the last ten years. He came to town to buy glass, hardware, paint and nails, for a farm house he was building some twenty miles away; and he turned up his nose at the hardware merchant who showed him wire nails, loose joint wrought butts and steel clad mortise locks with solid knobs. He wanted "no such new fangled stuff in any building he put up." The old cast butt, the clumsy cut 10 penny nail, and the comparatively worthless cast rim lock, and its equally worthless companion, the mineral knob, were to him all that could be desired.

Endeavoring to persuade him of the superior qualities, durability and economy of the later makes of hardware, elicited from him the expression that "he knew his business, and didn't want any city fellow to give him pointers." I dropped him as a hopeless case, and afterwards discovered that he made it a boast that "he never took any stock in fellows that read books and papers to find out all about building. He learned it all when he was a young fellow, and that is the reason he knows it all."

Unfortunately, too, many country builders are imbued with the same spirit as our friend. They have arrived at a certain point—a wall of prejudice, as it were—and beyond that it seems impossible for them to get. It is not my purpose to enquire into the reasons of this condition or prejudice, for I do believe there are reasons, psychological or other, that are accountable for the state of mind the country builder seems to drift into, to his own and to his employer's disadvantage, and it will be my object in this short essay to offer some suggestions to my country brother, by which, I am persuaded, if he adopts them, he may better his own condition and give better and more satisfactory service to those who honor him with their patronage.

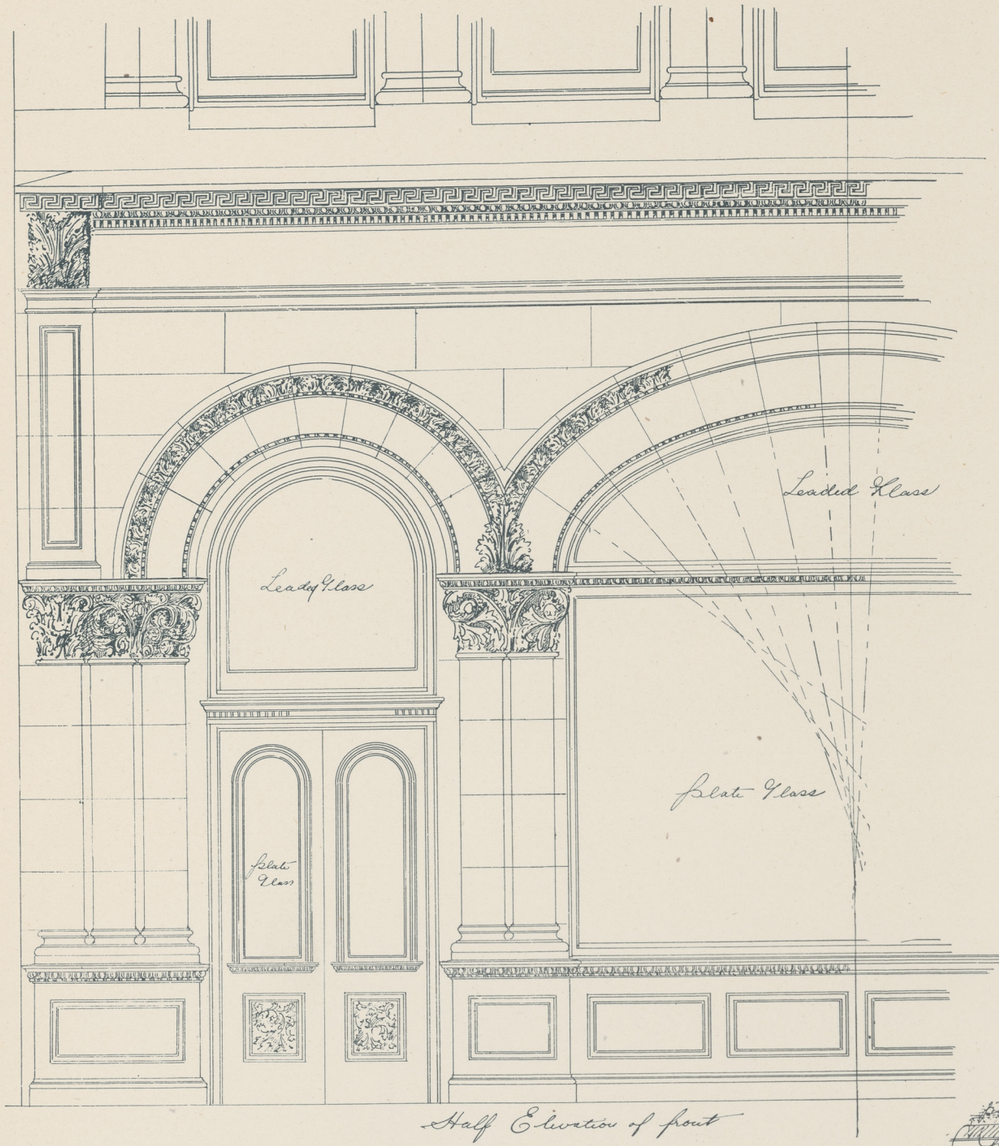
As farm houses, stables, barns and the other necessary out-buildings on a farm are generally planned by the owner and the builder jointly, or by the builder alone, it is incumbent that the latter should have some knowledge of drafting, that he should, at any rate, be able to sketch on a board with a lead pencil, to some workable scale, a plan and elevation of the proposed work. Such sketches, no matter how rudely executed, if correct to scale, will give the owner an idea of what he is going to get, and to the builder himself they will prove of inestimable value, both as a guide for obtaining his quantities and also as an object lesson in suggesting the best method to set to work to build it.

The country builder should also possess some knowledge of the "fitness of things," a quality that will enable him to design a house, barn or stable, with some degree of good taste. At any rate, he will not create a monstrosity. He should have a fair knowledge of figures, and should be especially expert in the mensuration of surfaces, for largely on this knowledge will depend the accuracy of his taking out the quantities, and his consequent estimate of cost. That he should have some knowledge of mason work, limes, mortar and sand, goes without saying, inasmuch as foundations, cellar walls, piers, cisterns and other stone work will often be under his supervision. It follows also, that he should be posted on plain brickwork, even if he constructs nothing more pretentious than a frame building, as he must see that the chimneys, fireplaces and flues are properly and economically put up and finished. If he is fortunate enough to be called upon to erect brick buildings, he should make himself acquainted with the various kind of "bond" used in brickwork, the quality of mortar required, and the necessary terms used, in order that the bricklayer may understand that the contractor knows just what he wants. The same with regard to the plasterer's work. While it is not necessary that he should be a chemist, yet he should be fairly posted regarding the qualities of lime and sand, so that he would be able to prevent the introduction of inferior materials in the work if necessary; in fact, he ought to be able to see at a glance the difference between good, bad and indifferent materials and fitments of all kinds—knowledge he can only obtain by expending effort and study.

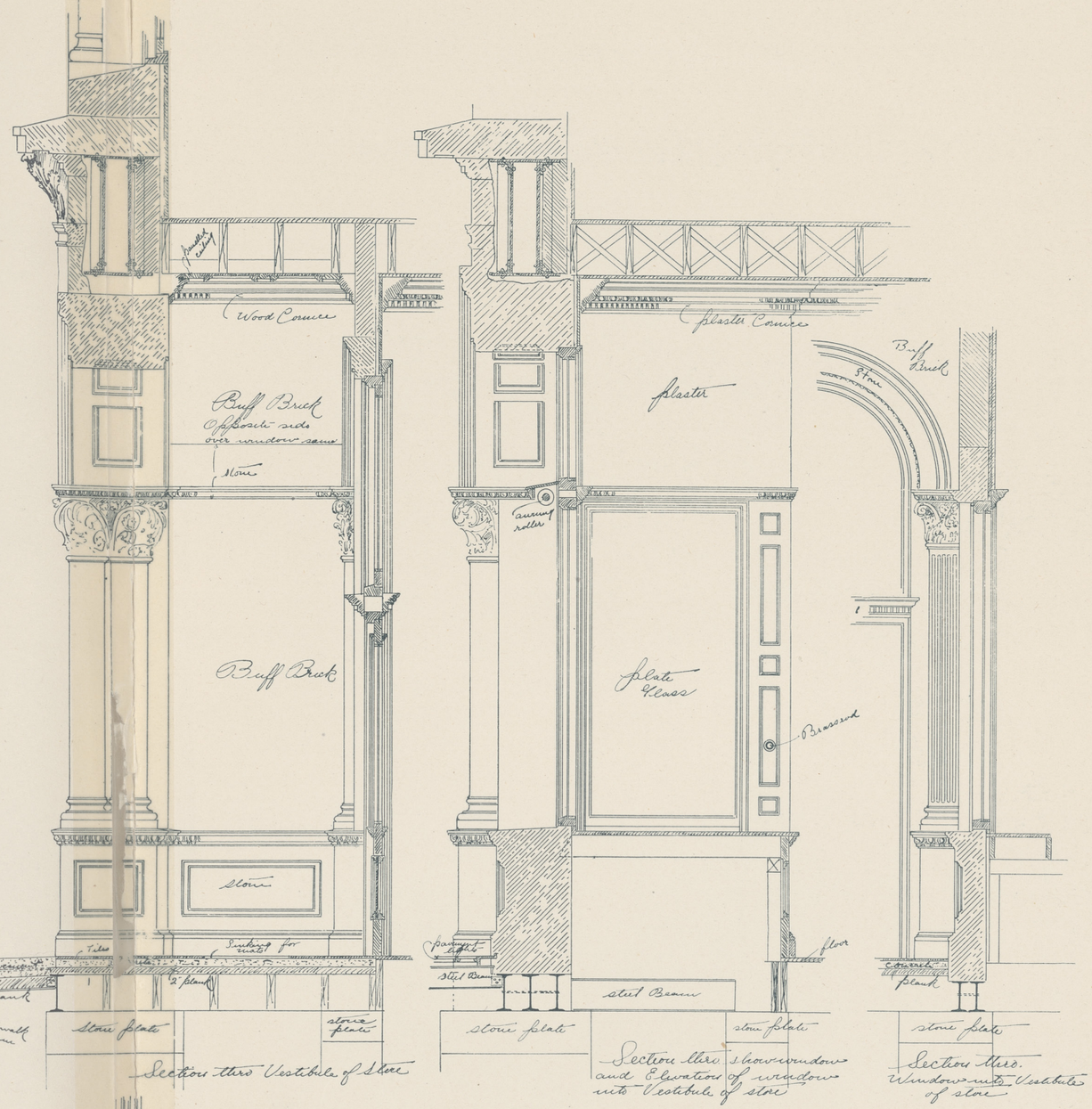
As the country builder is generally the person who not only builds, but also who designs the farm house, he should possess knowledge enough of sanitary plumbing, drainage and conditions to be able to advise the owner correctly on these important subjects. He should not leave the laying out of the plumbing to a plumber, unless the latter is an expert or has devoted considerable study to the subject; then, of course, the whole plumbing and drainage had better be left for him to arrange. If the building, whatever it may be, is to be heated with a furnace placed in the cellar or basement, the builder should have a definite understanding with the parties furnishing the furnaces as to the position of pipes, ducts and registers; for nothing destroys the strength and harmony of a house more than to cut for pipes, ducts and registers, after the building is nearly completed.

As the heating and water service of a house in Canada are important matters, the builder should inform himself as to the different kinds of appliances, their efficiency, their cost, and the fuel they consume—items the house owner will require to know before purchasing. As wind mills are now in common use among farmers for pumping and other purposes, a knowledge of them is indispensable, and as they enable the house-owner to have a water service if he so desires, it is essential that water pipes should be provided for as the building progresses, and as it is likely the builder will be asked to estimate and provide for this service, it follows he should be able to do it intelligently, for if he does not some one will be the sufferer.

While a chemical knowledge of paints, oils and coloring pigments is not necessary, yet the contractor should be able to distinguish the good from the poor, and should have on call a full knowledge of the cost of the various brands. He should also be able to tell his em-



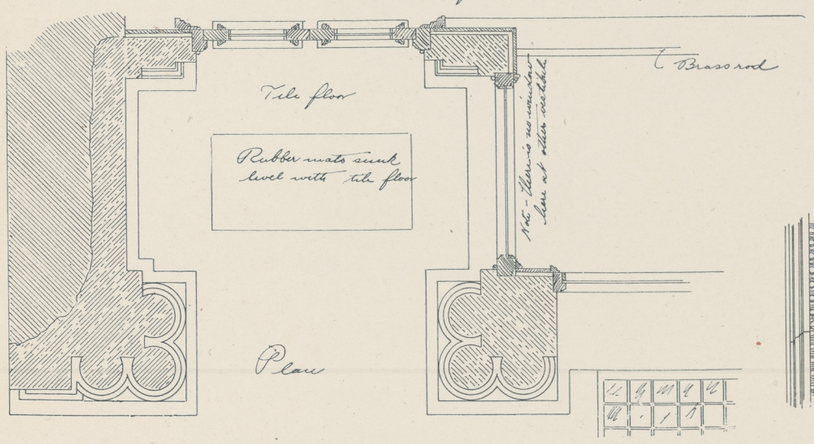
Half Elevation of front



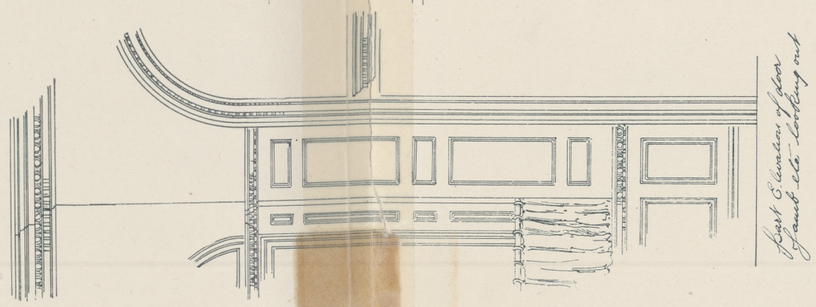
Section thro Vestibule of Store

Section thro show window and Elevation of window into Vestibule of store

Section thro Window into Vestibule of store



Plan



East Elevation of door and side looking out

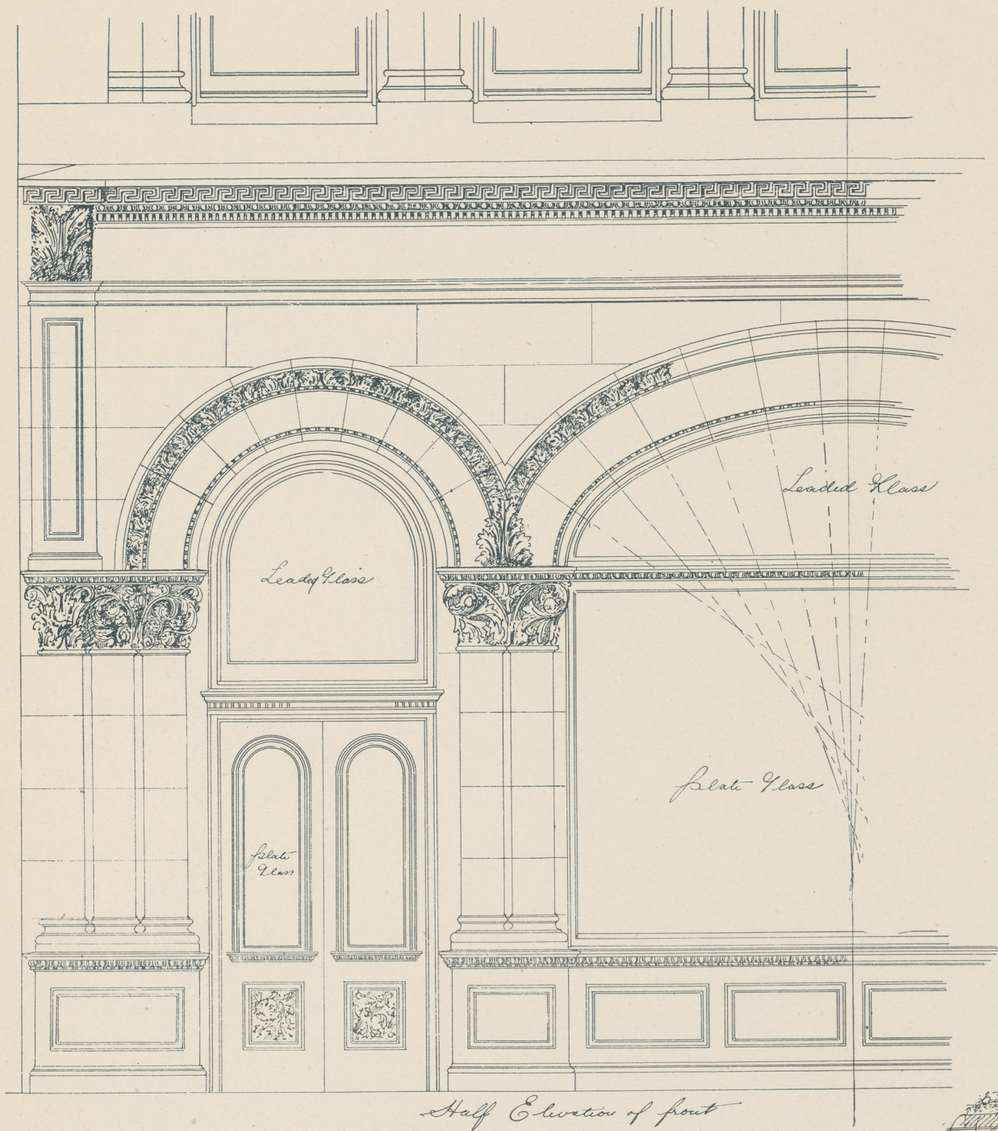
CANADIAN ARCHITECT AND BUILDER COMPETITION FOR A JEWELERY STORE

THREE QUARTER INCH SCALE DETAIL OF FRONT

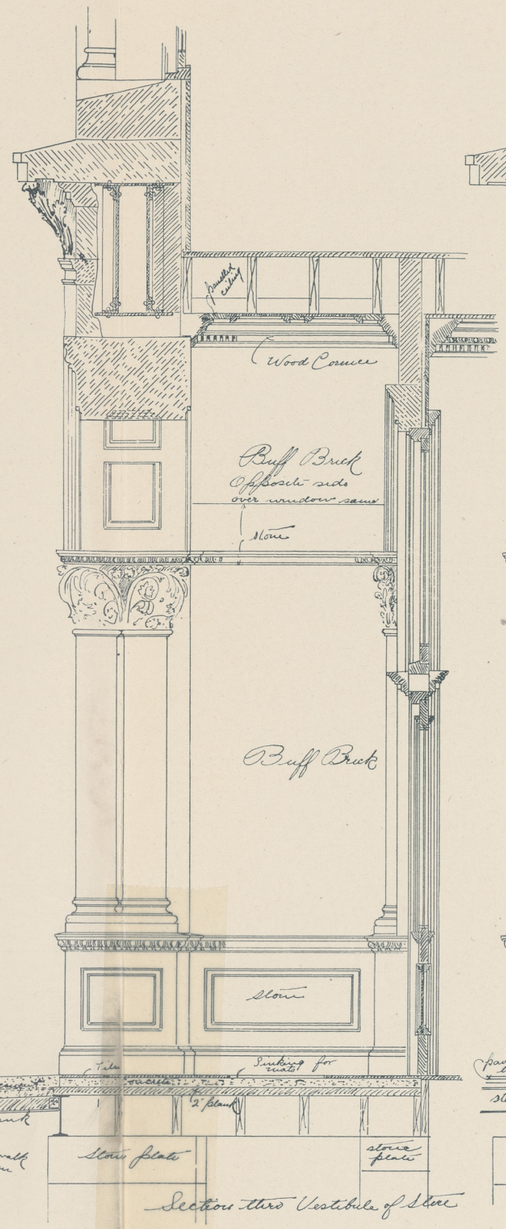
DESIGN SUBMITTED BY "ROMANESQUE"

"C. A. & B." COMPETITION FOR A JEWELRY STORE.

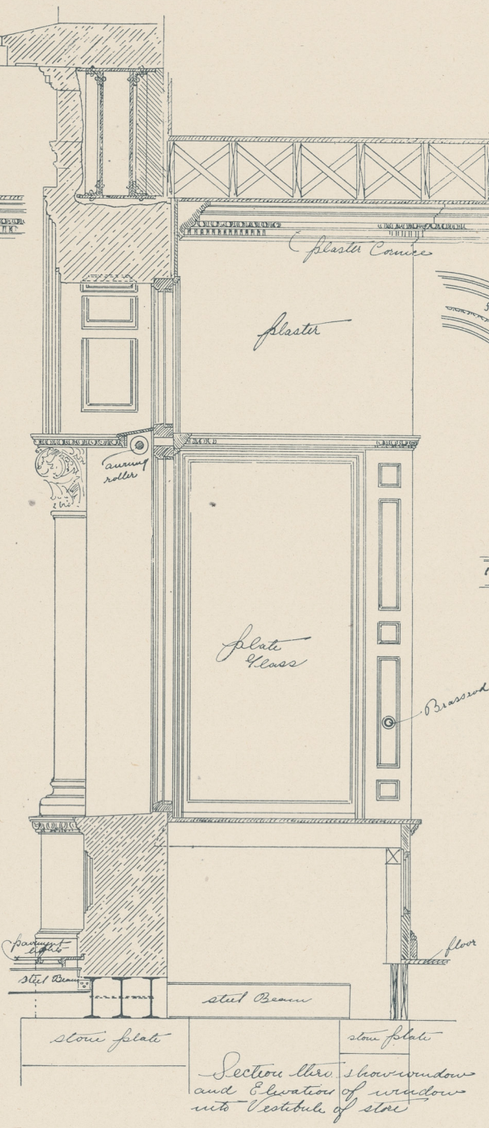
DESIGN SUBMITTED BY "ROMANESQUE," (MR. MELVILLE P. WHITE, TORONTO).—AWAEDED FIRST POSITION



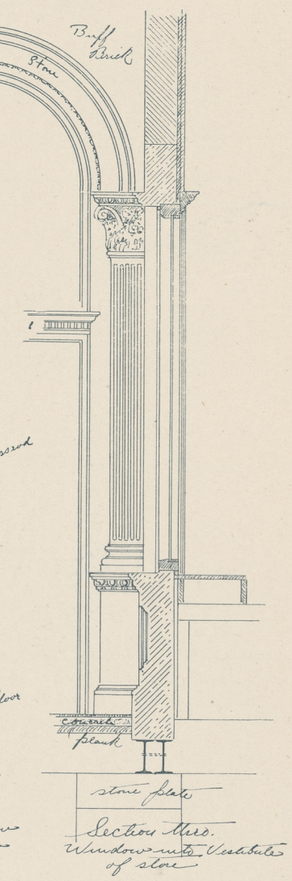
Half Elevation of front



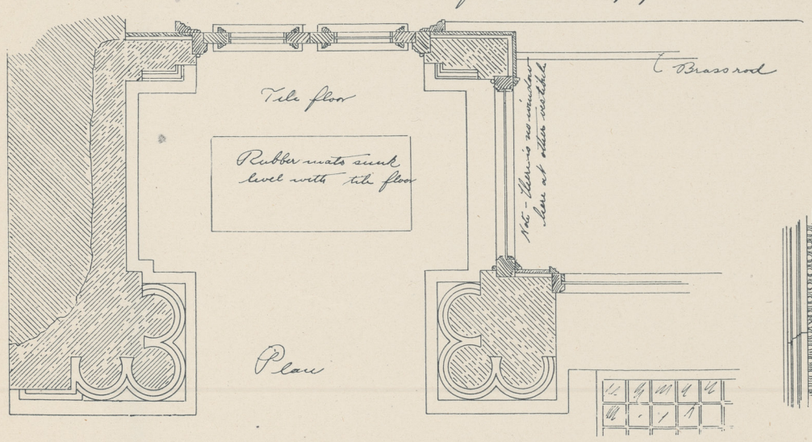
Section thro Vestibule of Store

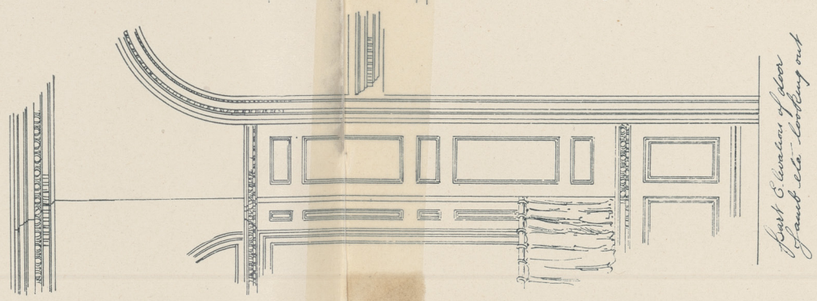


Section thro showing window and Elevation of window into Vestibule of store



Section thro. Window into Vestibule of store



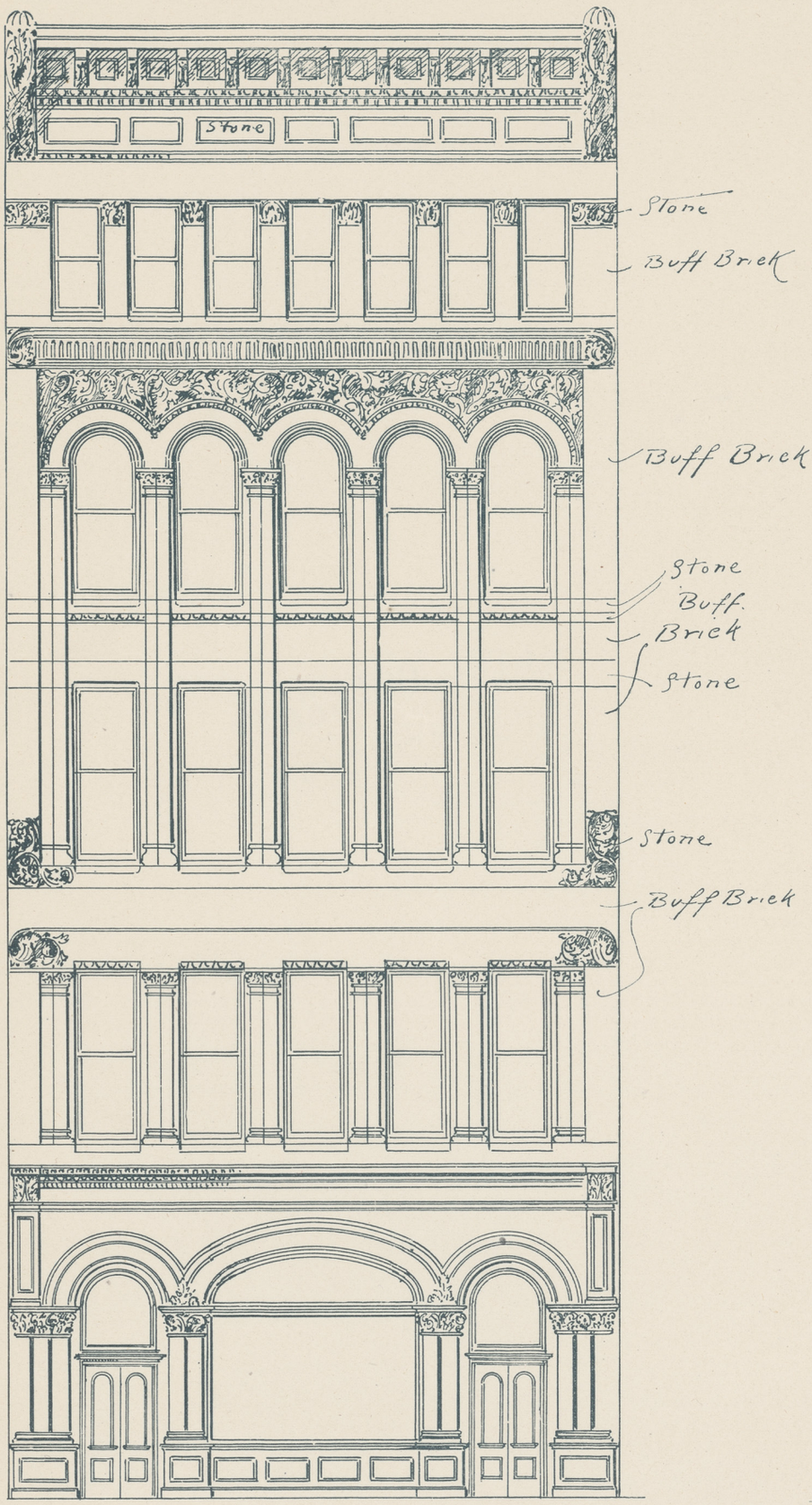


East Elevation of door and side looking out

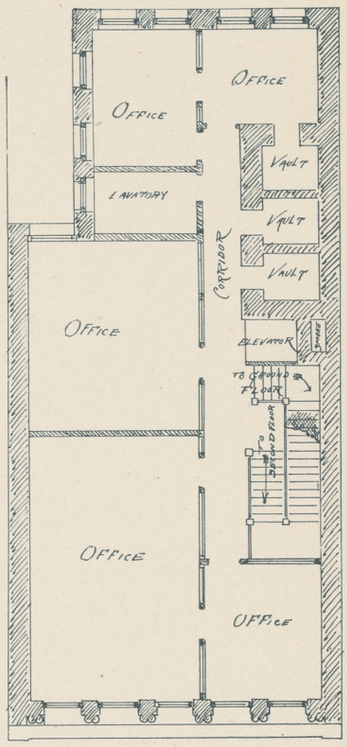
CANADIAN ARCHITECT AND BUILDER
COMPETITION FOR A JEWELERY STORE
THREE QUARTER INCH SCALE DETAIL OF FRONT
DESIGN SUBMITTED BY "ROMANESQUE"

"C. A. & B." COMPETITION FOR A JEWELRY STORE.

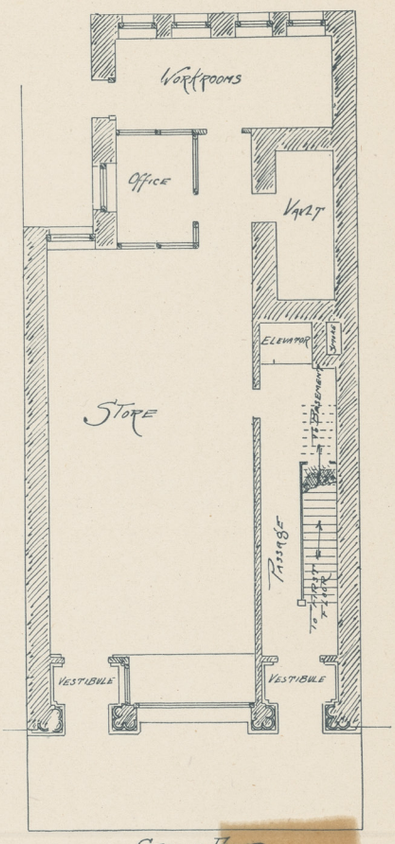
DESIGN SUBMITTED BY "ROMANESQUE," (MR. MELVILLE P. WHITE, TORONTO).—AWAEDED FIRST POSITION



ELEVATION



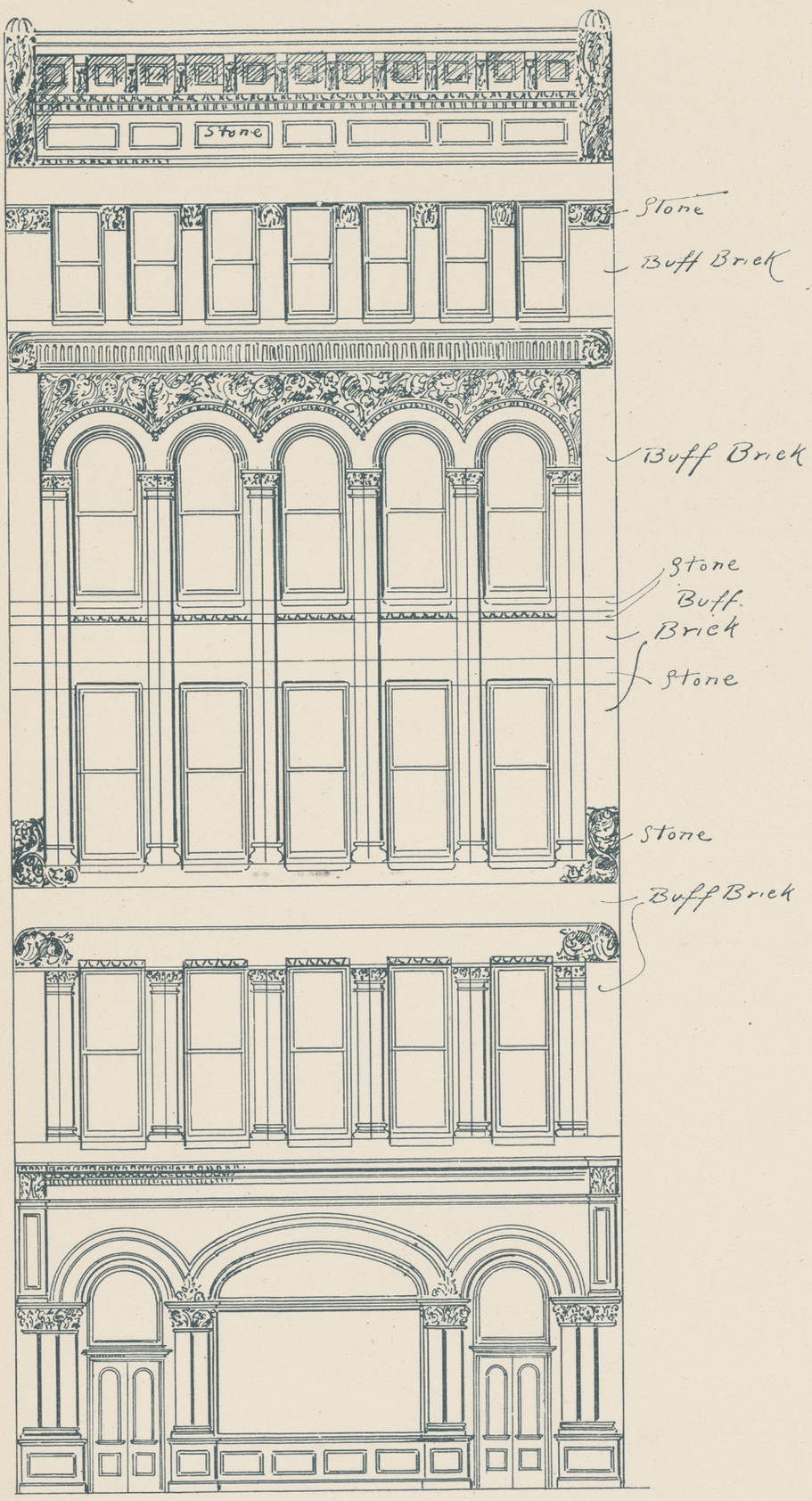
FIRST FLOOR



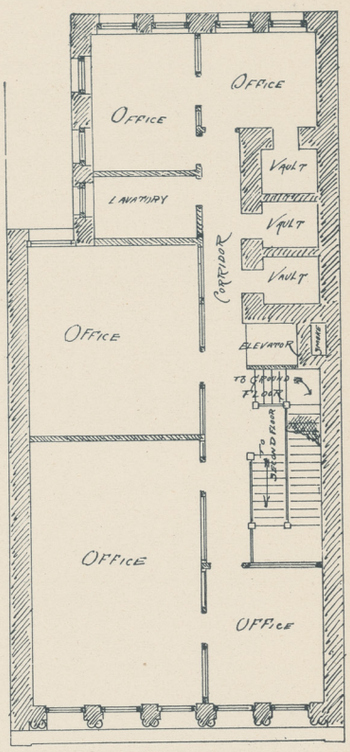
GROUND FLOOR

"C. A. & B." COMPETITION FOR A JEWELRY STORE.

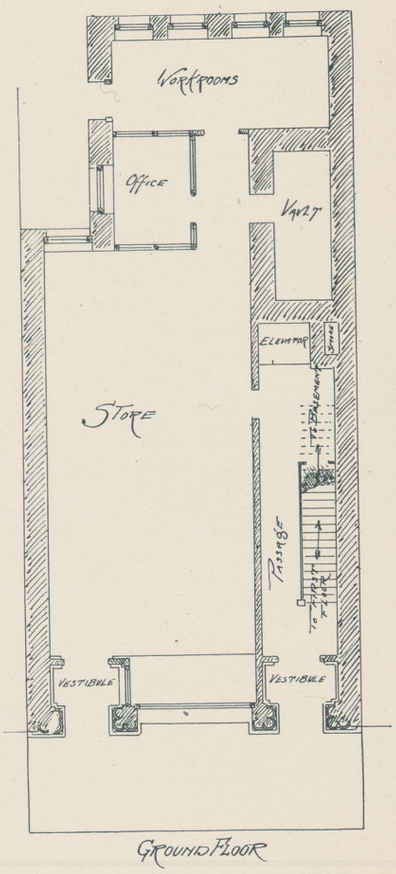
DESIGN SUBMITTED BY "ROMANESQUE," (MR. MELVILLE P. WHITE, TORONTO).—AWARDED FIRST POSITION.



ELEVATION



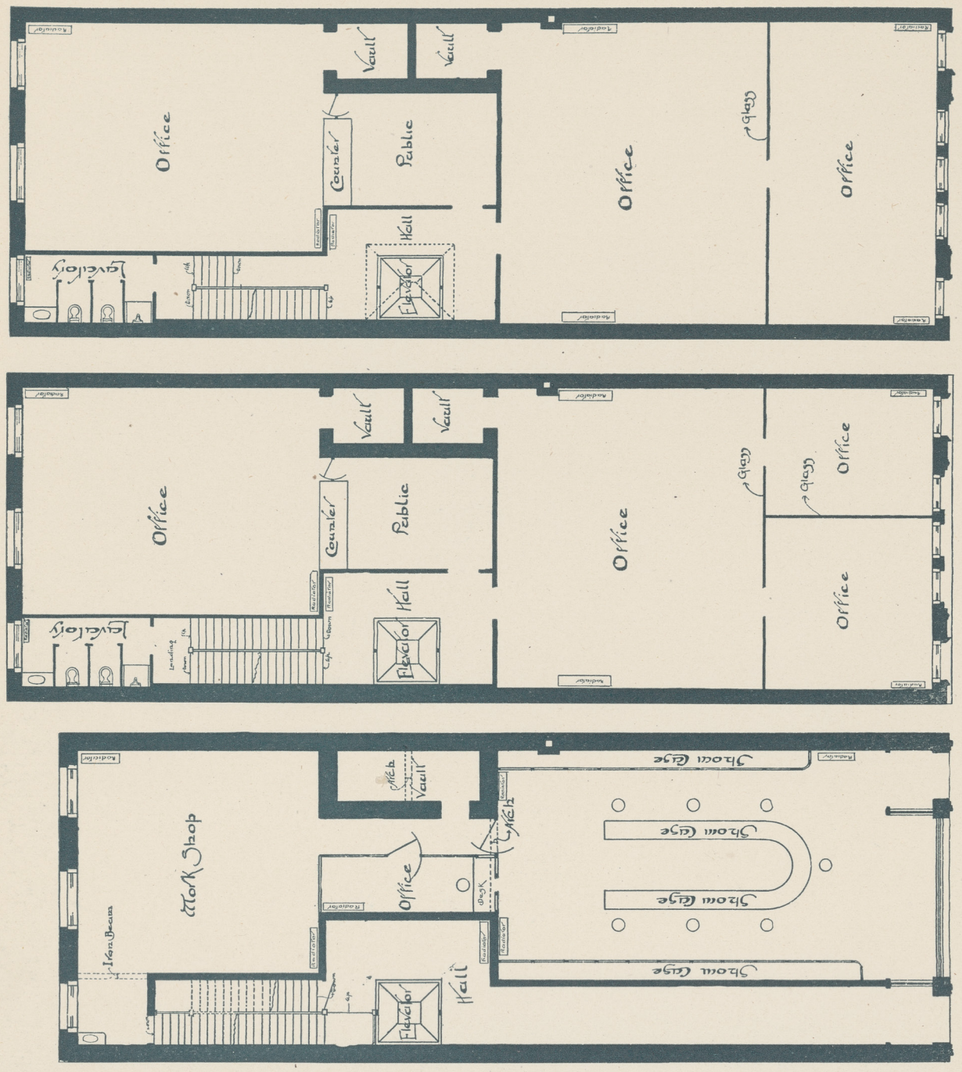
FIRST FLOOR

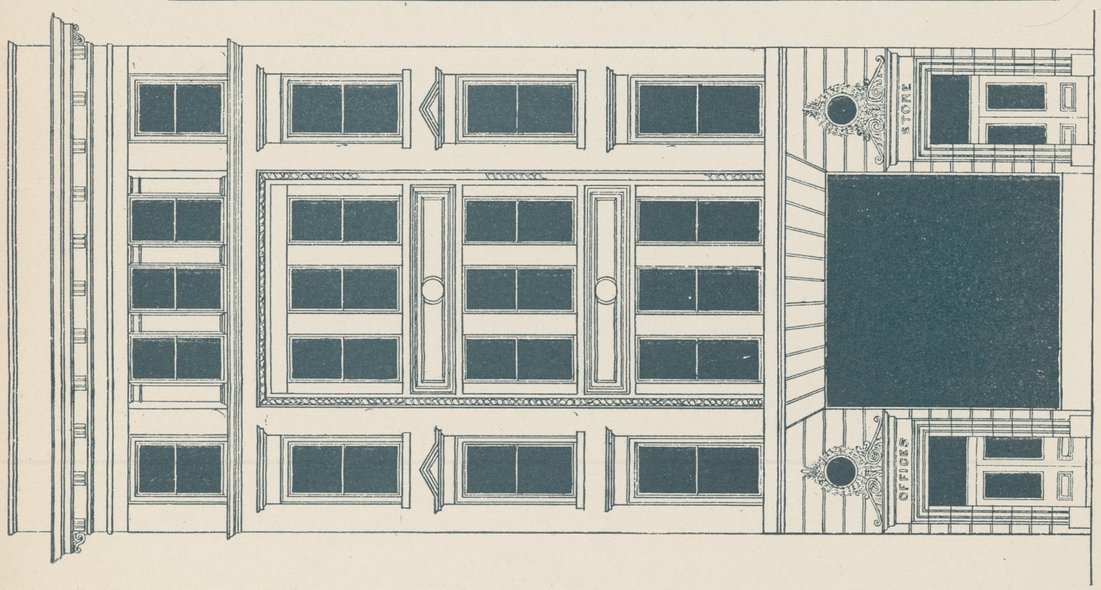


GROUND FLOOR

"C. A. & B." COMPETITION FOR A JEWELRY STORE.

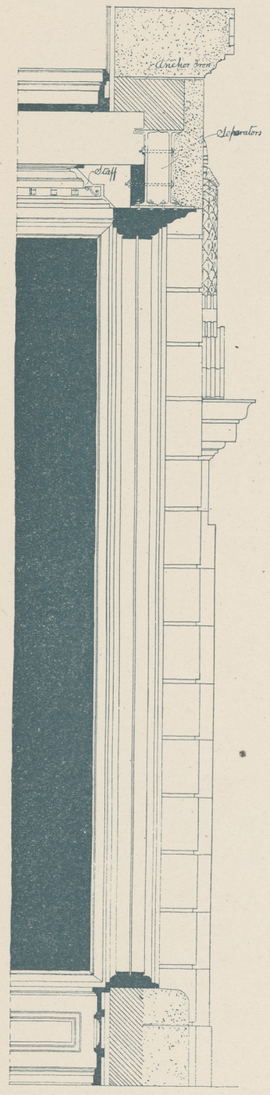
DESIGN SUBMITTED BY "ROMANESQUE," (MR. MELVILLE P. WHITE, TORONTO).—AWARDED FIRST POSITION.





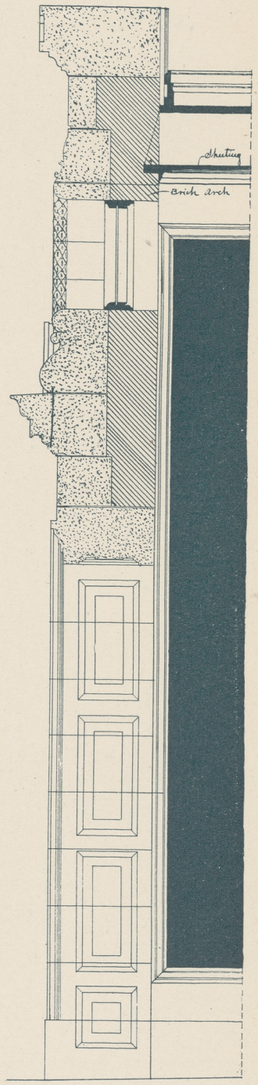
DESIGN FOR RETAIL
JEWELRY STORE
AND
OFFICE BUILDING

DEC 1895 SUBMITTED BY—
SCALE 1IN = 8FT "PENNY"

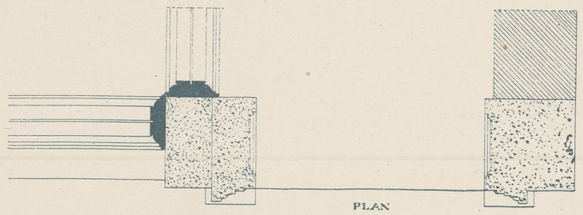


SECTION THROUGH
SHOW WINDOW

ELEVATION



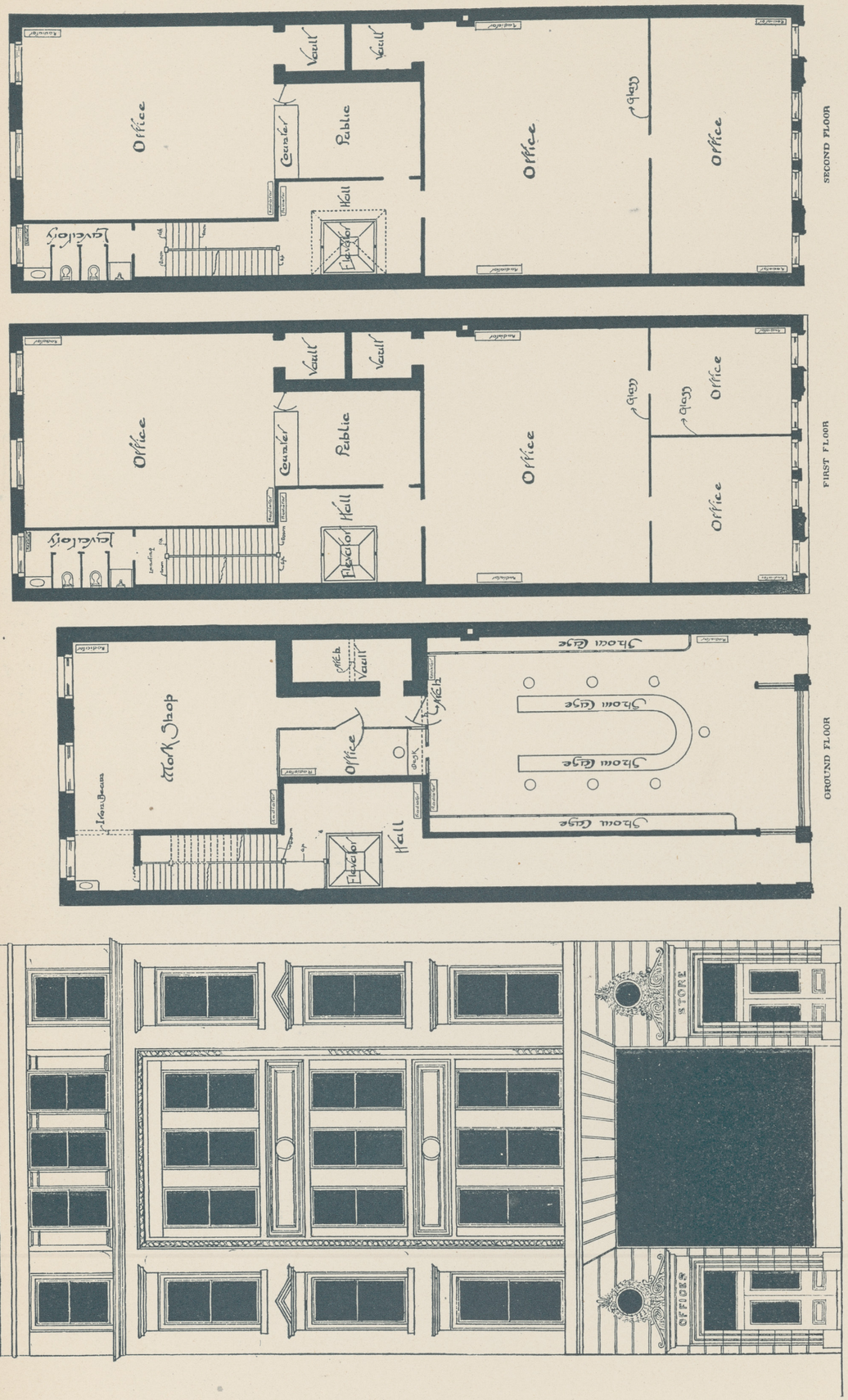
SECTION THROUGH
ENTRANCE



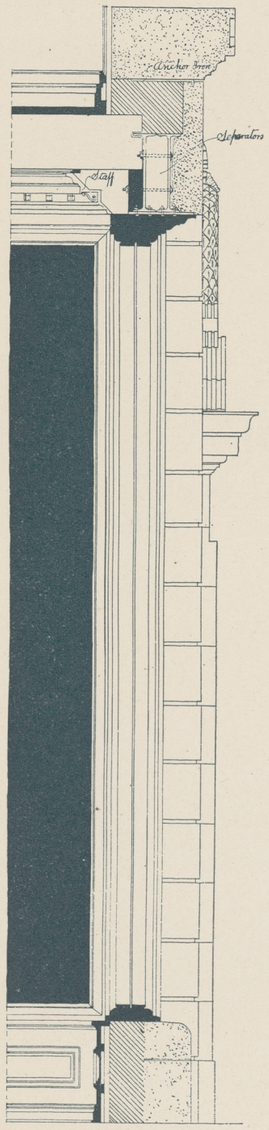
PLAN

"C. A. & B." COMPETITION—A JEWELRY STORE.

DESIGN SUBMITTED BY "PENNY," (MR. CHARLES [illegible] TORONTO).—AWARDED SECOND POSITION.

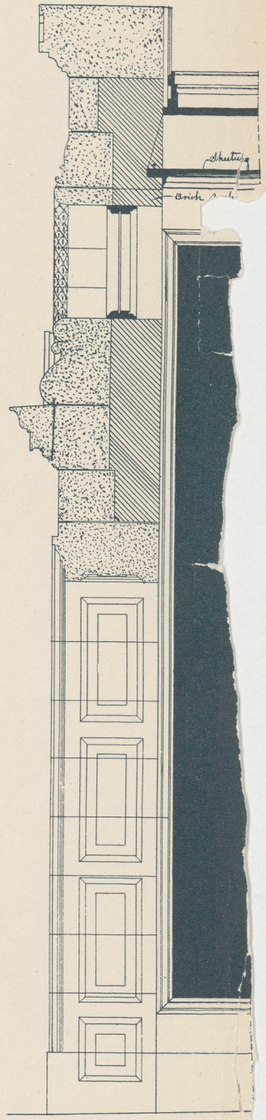


DESIGN FOR RETAIL
JEWELRY STORE
AND
OFFICE BUILDING
DEC 1856 SUBMITTED BY—
SCALE 1/8 = 1 Ft "PENNY"

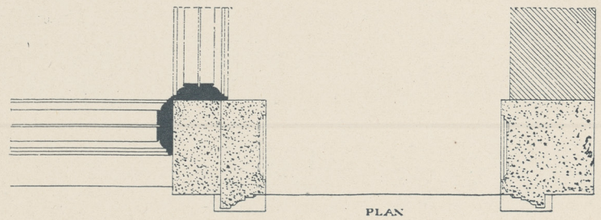


SECTION THROUGH
SHOW WINDOW

ELEVATION



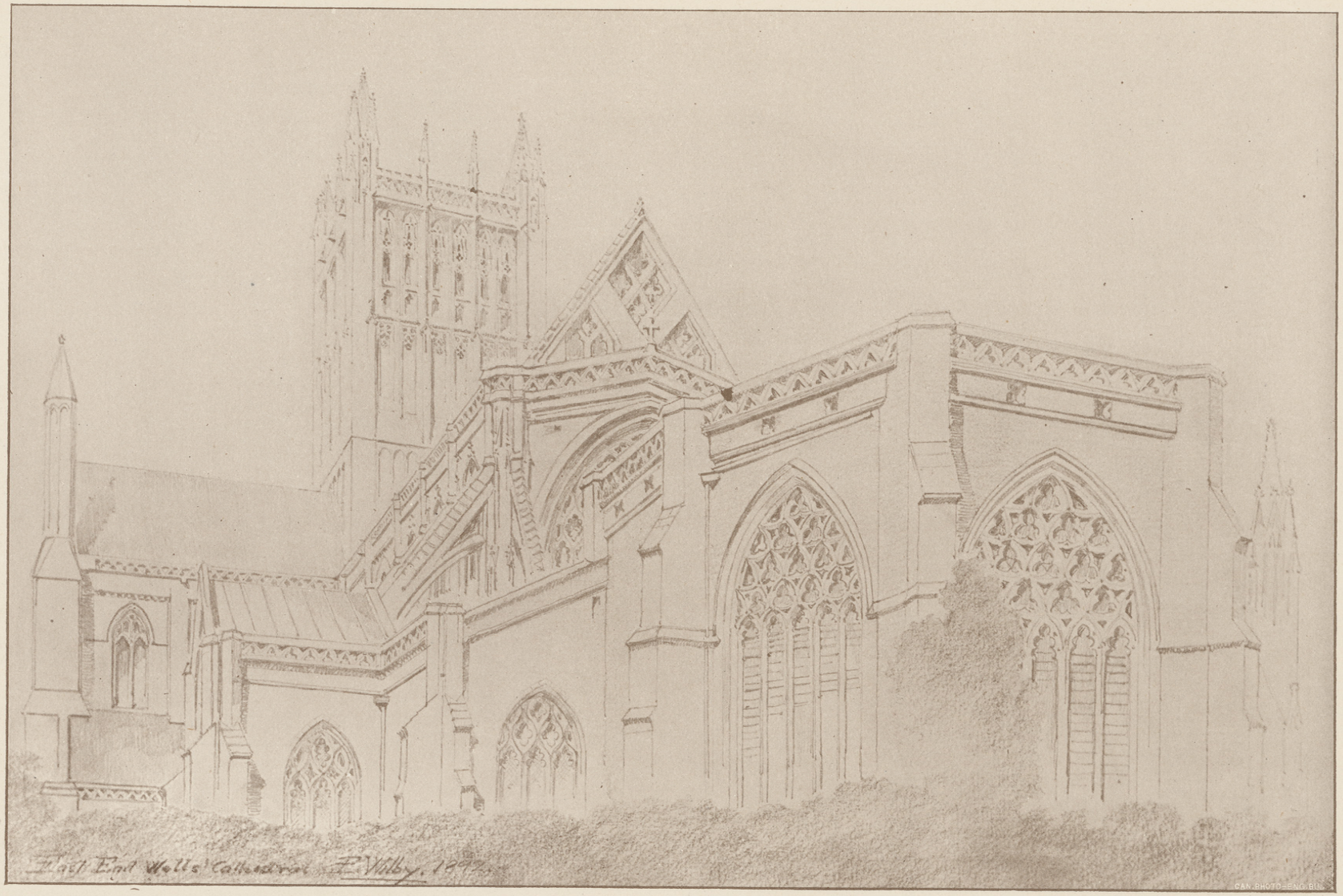
SECTION THROUGH
ENTRANCE



PLAN

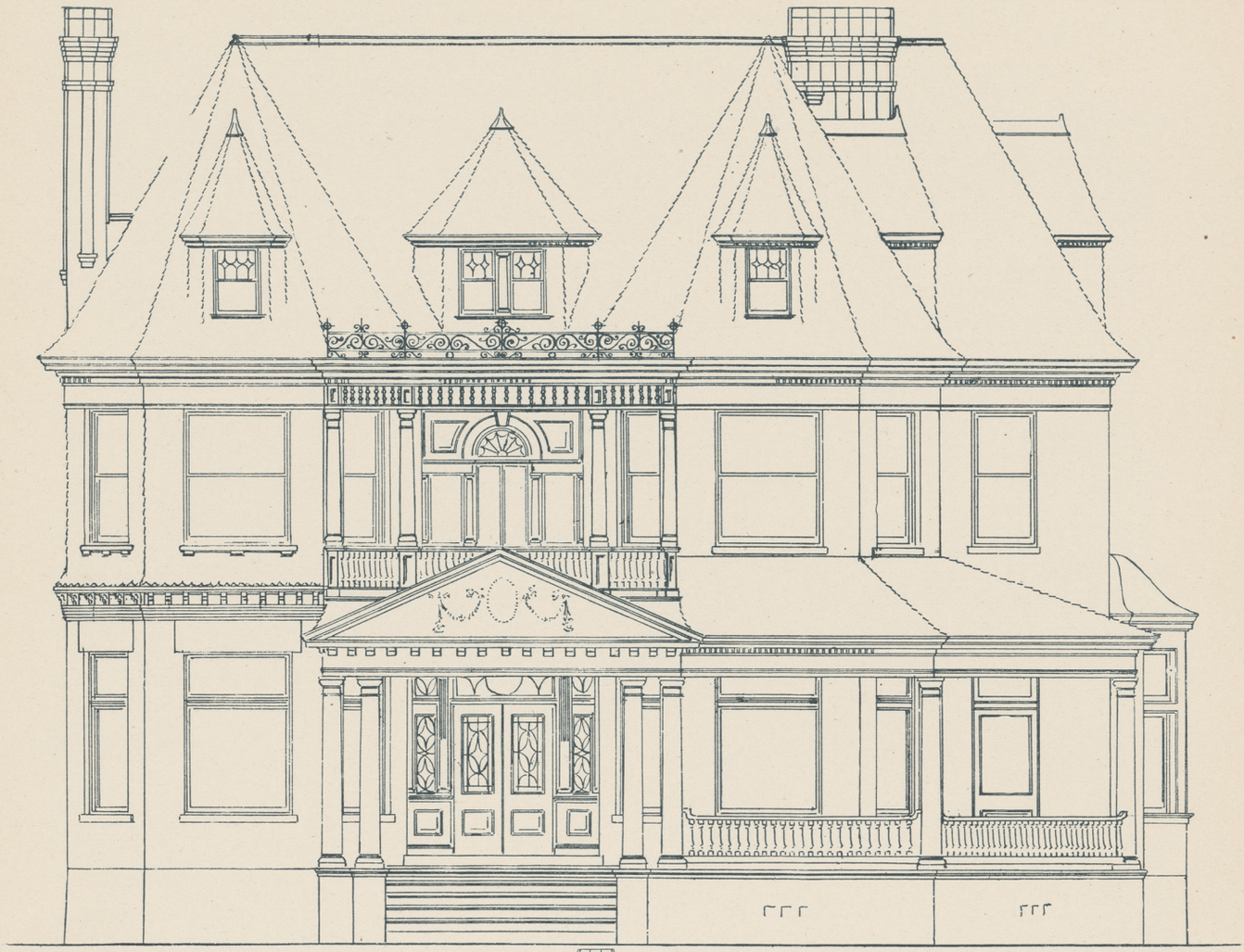
"C. A. & B." COMPETITION FOR A JEWELRY STORE.

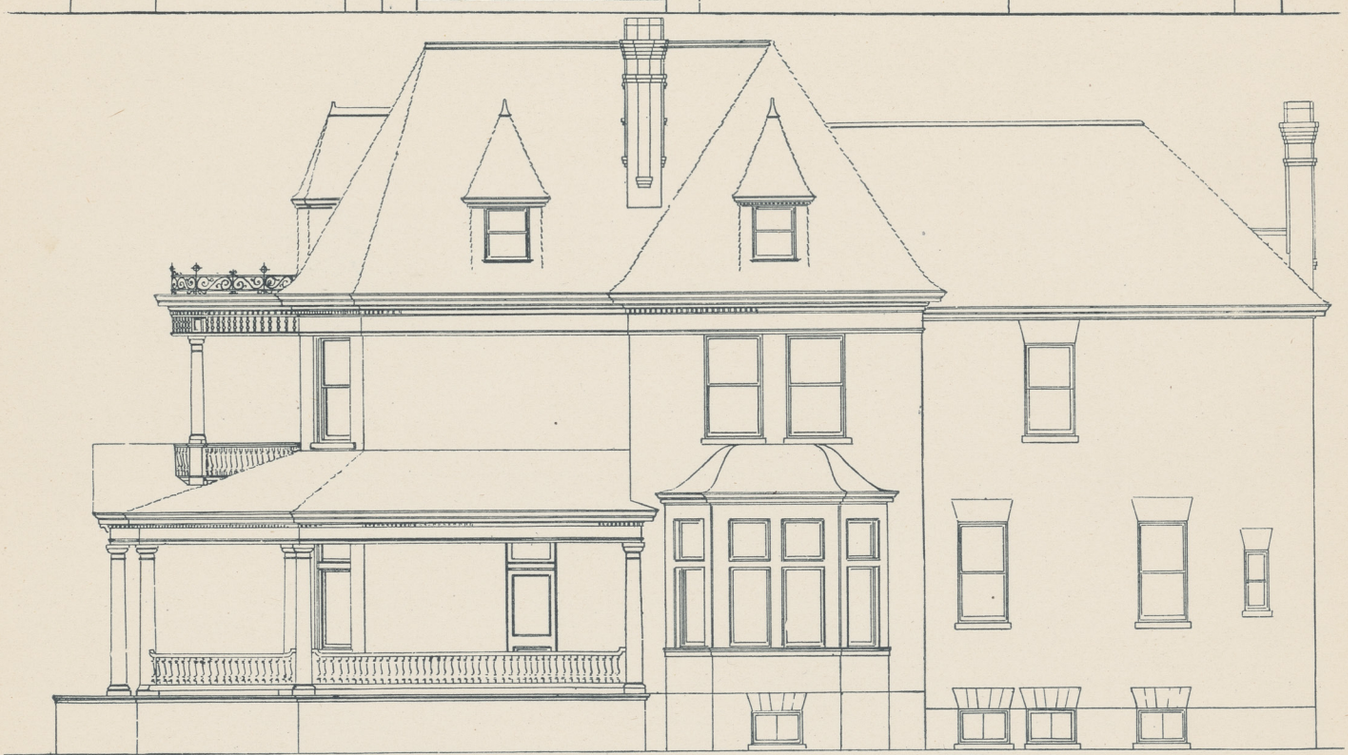
DESIGN SUBMITTED BY "PENNY," (MR. CHARLES P. BAND, TORONTO).—AWARDED SECOND POSITION.

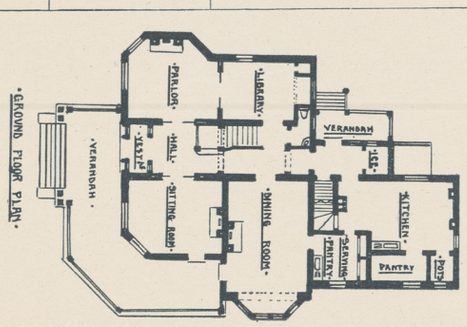


WELLS CATHEDRAL.

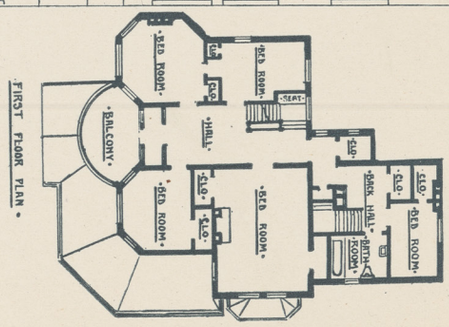
SKETCH BY ERNEST WILBY







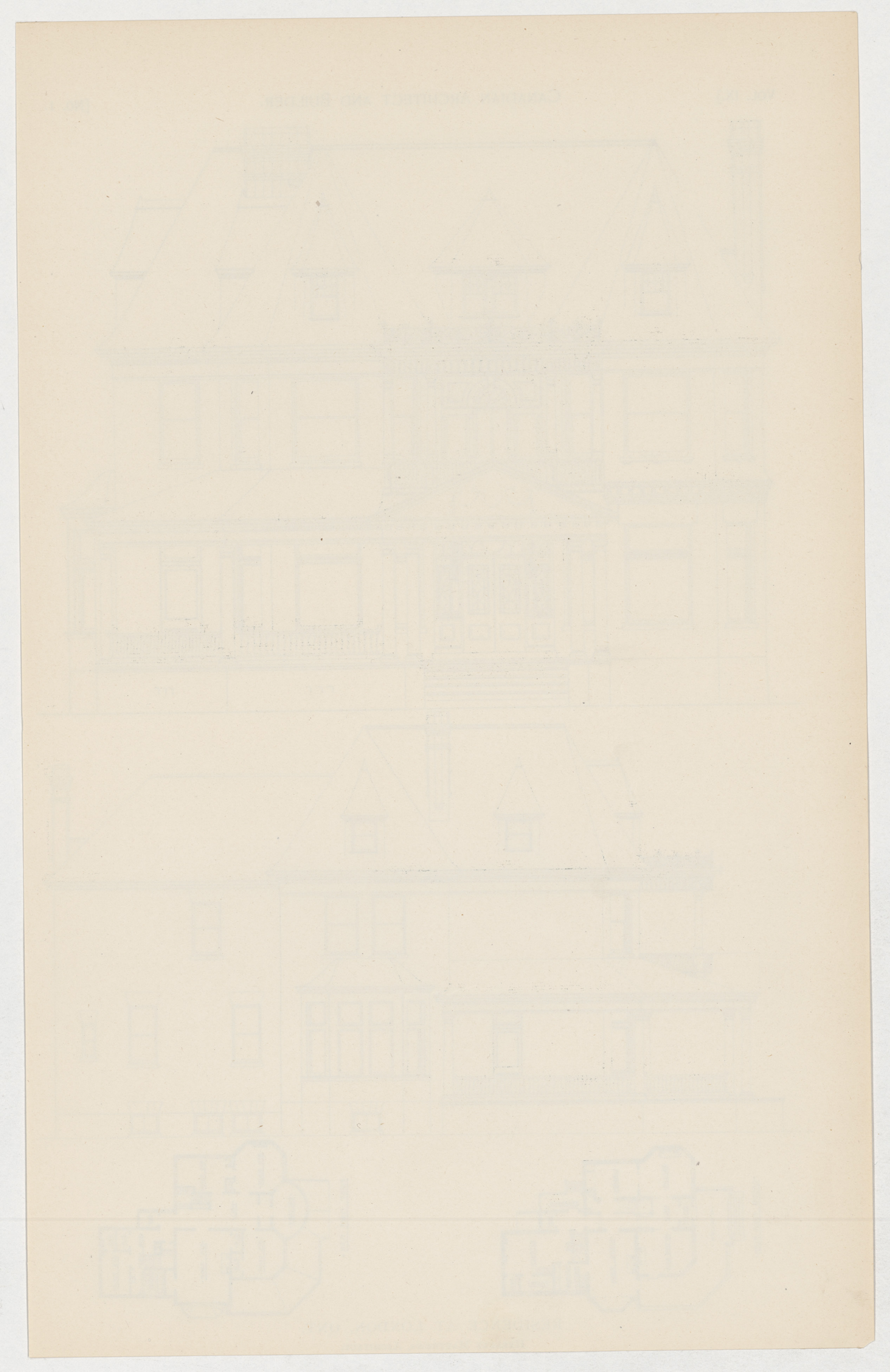
GROUND FLOOR PLAN.

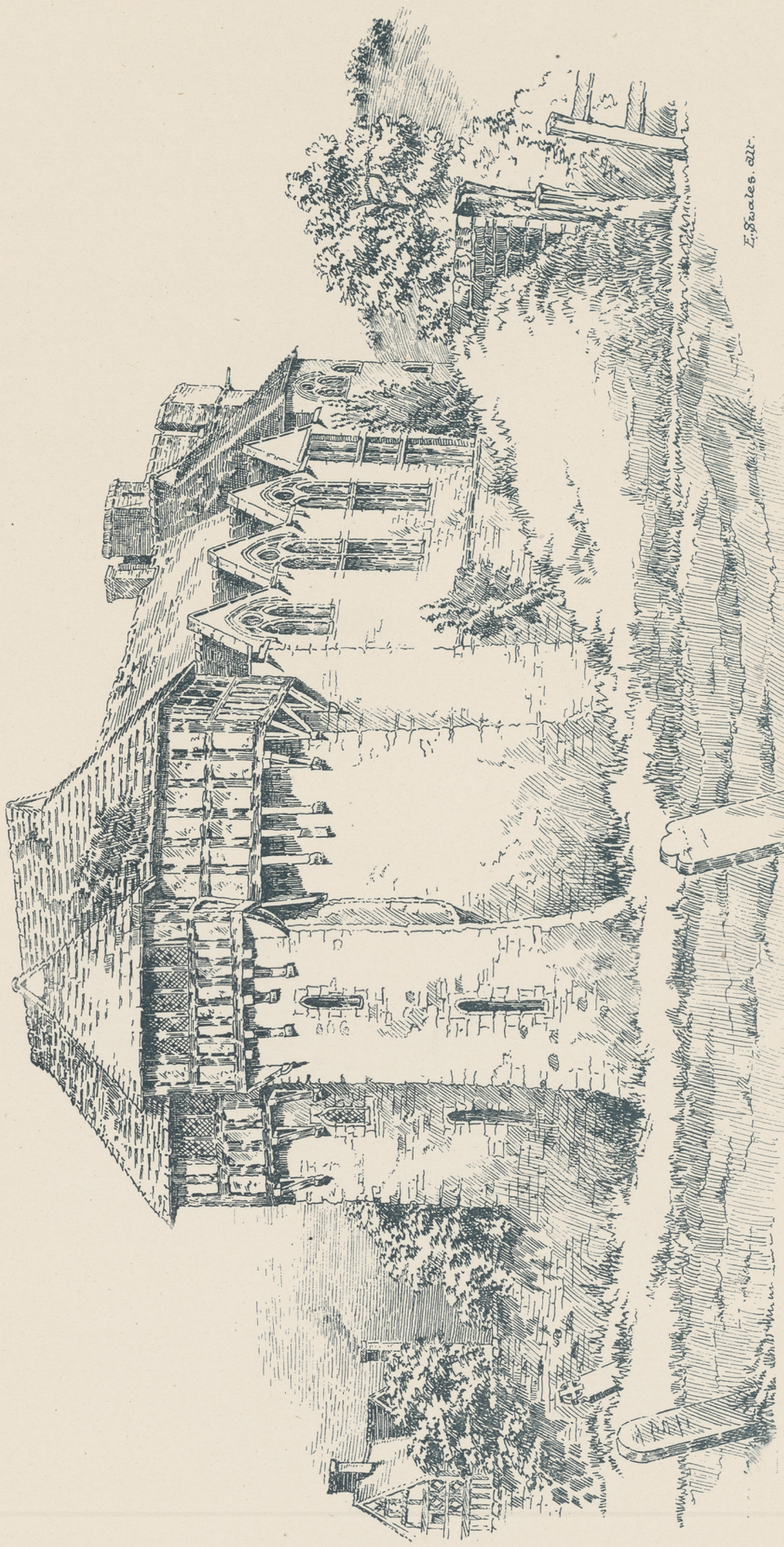


FIRST FLOOR PLAN.

RESIDENCE AT LONDON, ONT.

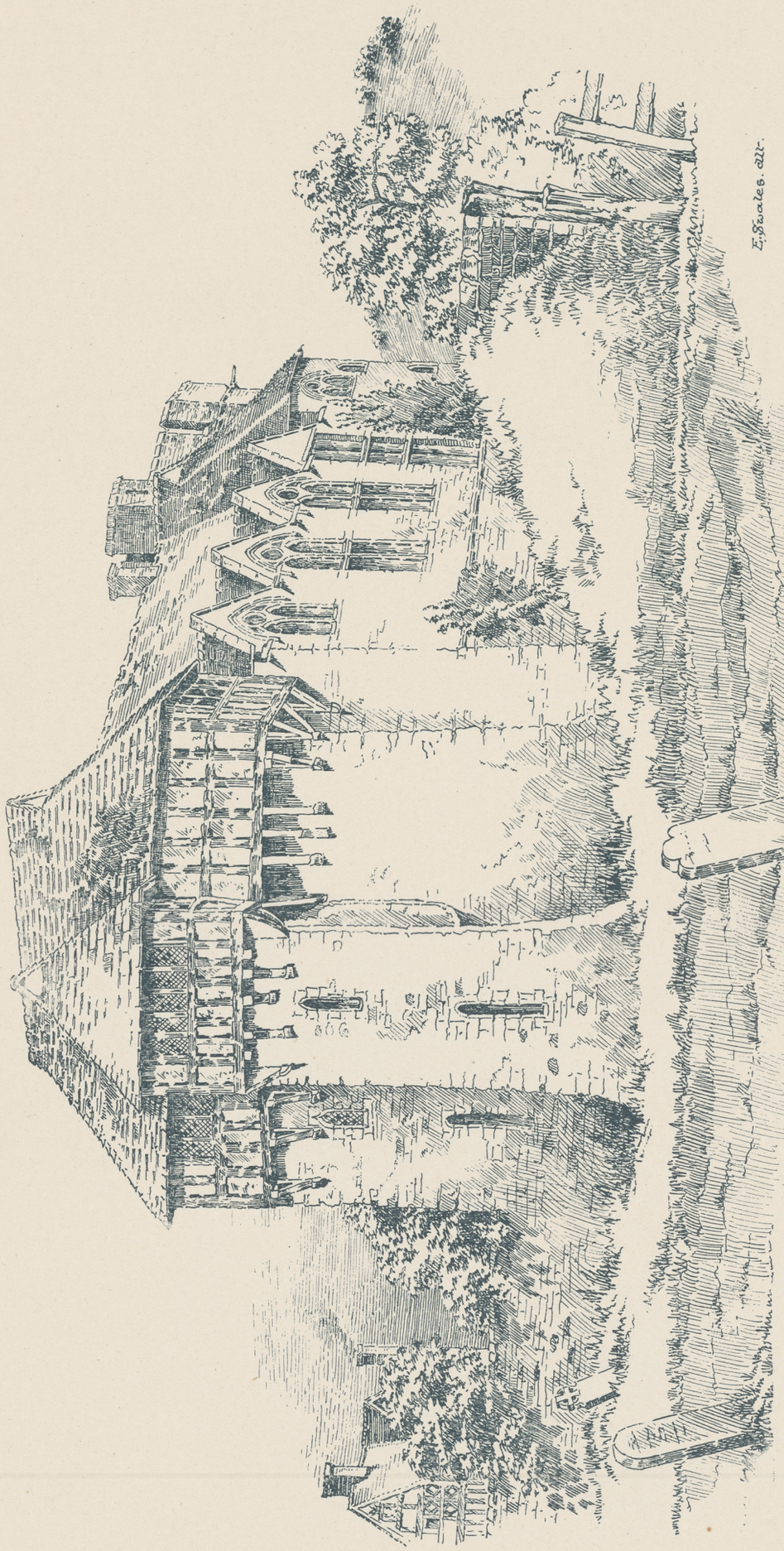
HERBERT MATTHEWS, ARCHITECT.





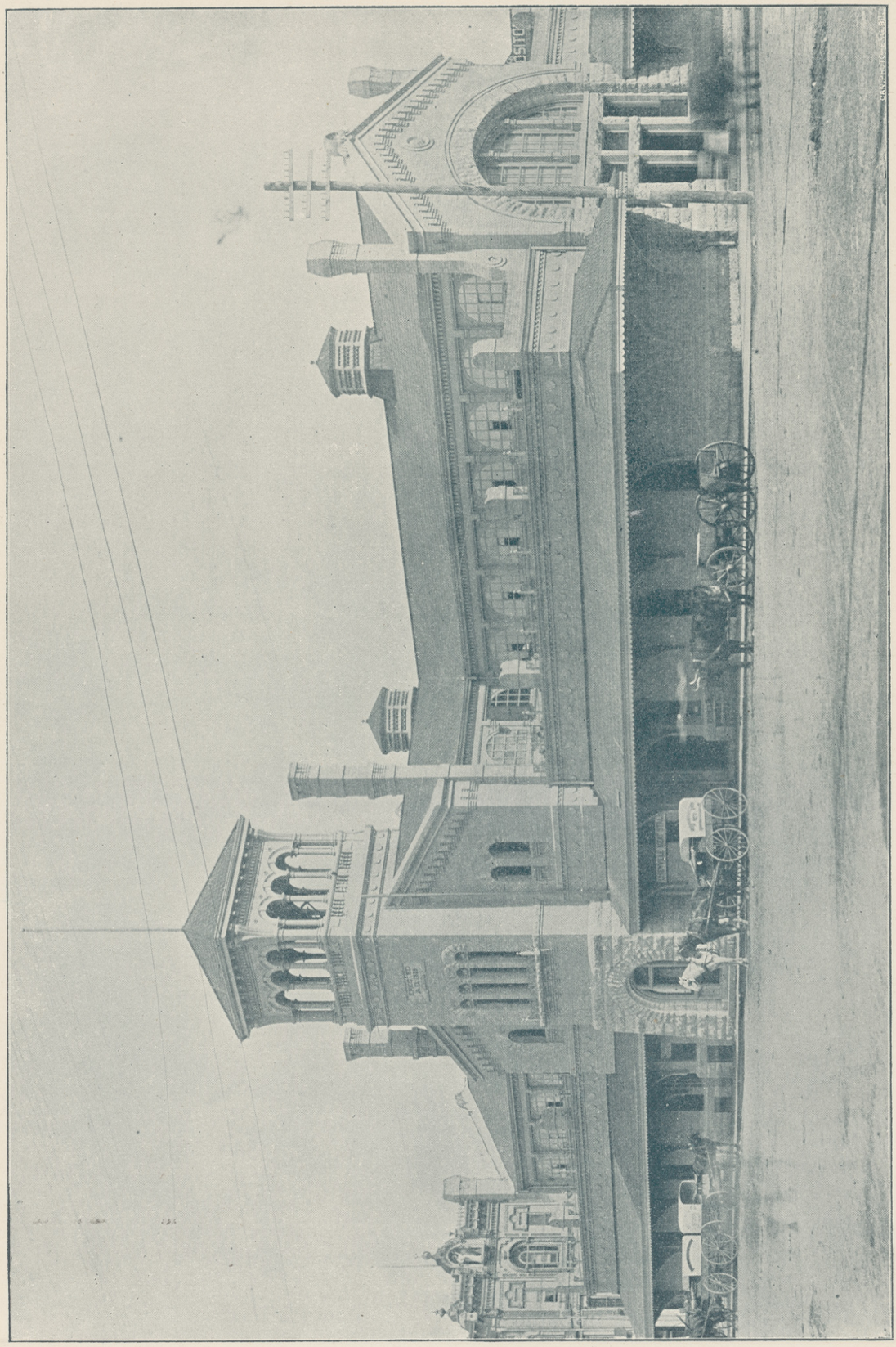
STOKESAY CASTLE.—VIEW OF NORTH TOWER.

SKETCH BY EDWARD SWALES.



STOKESAY CASTLE.—VIEW OF NORTH TOWER.

SKETCH BY EDWARD SWALES.



PUBLIC MARKET BUILDING, WINNIPEG, MAN.

GEO. BROWNE, ARCHITECT.

STORE BUILDING FOR P. JAMIESON, QUEEN AND YONGE STREETS, TORONTO.

CURRY, BAKER & CO., ARCHITECTS.

ployer what colors harmonize, what are contrasts and what are suitable to the work in hand—matters that will require but little effort on his part to understand, if he applies himself to the proper sources. It is also essential that the contractor should possess some knowledge of proportion. It is not to be expected that he is to take a regular course, or make a special study of Greek examples, but he should at least know a few of the elementary principles of proportion that may be obtained from many of the low-priced architectural works now in the market. This knowledge is necessary in laying out windows, doors, stairs, and the sizes of rooms, and in a more æsthetic sense, in proportioning cornices, plinths, bases, capitals, mouldings, and the thousand and one other things required about a building.

So far I have said nothing of lumber and timber required, for as a rule, in this Canada of ours, it is the carpenter who is called upon to design and build the farmer's house, barn, stable or other outbuildings, and it goes without saying that so far as the wood employed in the building is concerned, he knows, or ought to know, all that may be said about it here, so far as quality and durability are concerned; but, under this head it may not be out of place to say that he sometimes lacks a proper knowledge of the prices charged for manufactured wood-work. Like many other manufactured goods, factory wood-work is subject to variations in price, and the difference in their price may materially affect the profits expected in a building, and this makes it important that a correct knowledge of prices current be obtained before an estimate is given. The same rule applies to hardware, glass, paint, and in fact, to everything employed on or about a building.

The next thing to be considered is, "how is the country builder to obtain the knowledge suggested in the foregoing?" At first sight it does appear as though it would cost considerable in money, energy and time to acquire this knowledge. I think, however, I will be able to show that with the aid and good will of the country builder, it will not require much energy, less money, and but a little effort to reach the desired goal. In the first place the "country builder" should subscribe for an architectural paper, similar to the CANADIAN ARCHITECT AND BUILDER, or more than one if he can afford it. This will keep him posted as to the various styles of building in vogue, methods of construction, new materials, new appliances, and all that is going on in the building world. It will also bring the builder face to face with the dealers in the numerous requirements for building purposes, if he scans the advertising pages, such as heating apparatus, hardware, glass (white, stained or plate), bricks, tiles, roofing materials, finished wood-work and plumbing fitments. Letters or postal cards sent to their manufacturers or dealers (always mentioning the journal from whence the address is obtained) will be sure to bring by return mail all the information possible regarding the goods mentioned in the advertisements. By looking over the advertising pages carefully, the builder will be sure to find the name and address of some party or parties who make or deal in the goods required, and by following this method a very useful and a very interesting collection of catalogues, circulars and price lists may be secured, that will prove serviceable to both builder and manufacturer. So far as heating appliances are concerned, I may say that many of the prominent manufacturers issue catalogues of their work that are really a credit to the firm and to the house publishing them, and to the recipients they must prove of great advantage, as they not only show the heater and its construction, give its price, weight and capacity, but frequently give plans for piping with full descriptions, size of pipes, etc., etc., and ofttimes easy and intelligent essays on the principles of heating and ventilation. A little study of these catalogues and a memorizing of sizes, capacities and prices of the goods catalogued, will make the country builder an authority on such matters at once, and this end can be obtained with a minimum of effort and cash.

With regard to the other requirements mentioned, I may say that I append a list of books which cover the ground, and which in my opinion are best suited to the wants of a country builder who has not had the advantage of a liberal education or a city training.

I do not offer this list as the best of the kind to be had, but as the best for the purpose discussed. For general purposes either Gwilt or Nicholson would be preferred to Loudon, but, as the latter's "Village and Farm Architecture" just answers a country builder's wants, I name it as the main book he should possess after his monthly architectural journal or journals.

LIST.

The Canadian Architect and Builder, per year	$ 2 00
Loudon's Village and Farm Architecture, price	8 00
The Canadian Contractor's Hand-Book, price	1 50
The Builders' Guide and Estimator's Price Book, price	2 00
The Painters' Hand-Book, price	25
Plaster, How to Use and How to Make, price	1 00
Plumbing, Heating Drainage and Ventilating, price	3 00
Hardwood Finisher, price	1 00
Total	$18 75

With this expenditure, to which will require a little brains added, and some application, the country builder may equip himself with sufficient knowledge to become an authority on farm buildings, which should redound to his profit as well as to his fame. Loudon is brim full of excellent ideas that the bright and snappy contractor will avail himself of, and his treatise on stone and brickwork contains ample food for all the reasonable wants of country practice. The other books, besides being instructive, will guide the contractor on correct lines of estimating, which, if followed, will prevent him from taking work below its actual value, a custom that has ruined many "A Country Builder."

ANOTHER dispute on a school house case is reported from East Toronto. The School Board having determined to wait until next year before erecting a school building suitable to the wants of its population, trouble arose with the architect. His plans for a four room section of a 12 room school were accepted by the Board, the understanding being that the cost should not exceed $6,000. The lowest tender received, however, was in the neighborhood of $8,000 and because of the great discrepancy the Board returned the plans. The architect now asks for some $400, but the Board thinks a tenth part of this sufficient. The matter has been referred to arbitration.

THE Supreme Court of Louisiana held, in the recent case of Maas vs. Succession of Hernandez, that where a contract for a fixed amount is entered into between the owner of the property and a builder according to certain specifications to which a plan is annexed as explanatory thereof, no charge, in the absence of an agreement to that effect, can be made for extra services in the preparation of the plan; that the builder appears in the transaction not as an architect, but as a contractor, and that a builder claiming renumeration over and above the contract price of a building for certain labor and material as having been furnished for extra work, must establish with reasonable certainty that they were used for that particular purpose.

BUILDING IN CANADA IN 1895.

REVIEW OF THE SEASON'S OPERATIONS IN THE LEADING CENTRES.

FOLLOWING its usual custom, the ARCHITECT AND BUILDER presents herewith a review of building operations in the leading centres of Canada for the year 1895. The hopeful feeling which existed at the beginning of the year has, we regret to say, not been realized to the extent which could be wished. Business has not experienced that revival which was anticipated, and as a result neither corporations nor individuals have felt justified in launching out into enterprises which involved the expenditure of considerable sums of money. Nevertheless, at some points there has been considerable building activity, notably in Toronto, where the disastrous fires of last January left blanks in the business part of the city which could not be allowed to stand unfilled. The low price of material, especially lumber, has induced a certain degree of activity among those possessed of capital, this remark applying more to residential than to business property. As compared with the previous year the reports which have reached us would seem to indicate a falling off in the value of buildings erected, taking the country as a whole, though it is impossible to arrive at anything like accurate figures, especially in the rural districts.

TORONTO.

We cannot convey a better idea of the building operations of the city of Toronto for the year than by giving a list of the permits issued by the City Commissioners's department, which will show at a glance the number, class of building and value. As will be observed the permits numbered 371 and the value considerably over a million and a quarter dollars, a very respectable showing for a year when money was tight and the encouragement to build, especially business premises, not great. Of course quite a proportion was the result of the disastrous fires, and a good many of the permits were for alterations and repairs, but these in many cases amounted almost to an entire reconstruction. Here is the list :—

		$ c.
75	Brick Dwellings	194,700 00
25	Brick Fronted and Rough Cast do	24,700 00
105	Alterations to Dwellings	59,395 00
13	Brick Stores	25,450 00
37	Alterations to Stores	79,000 00
12	Factories and Workshops	80,125 00
11	Alterations to Factories	41,200 00
6	Warehouses	55,500 00
8	Alterations to Warehouses	28,000 00
5	Alterations to Office Buildings	16,500 00
9	Schools and Alterations to Same	87,100 00
4	Churches and Alterations to Same	34,500 00
2	Fire Halls	10,700 00
8	Hotels and Alterations to Same	33,425 00
21	Stables	18,375 00
2	Alterations to Theatres	9,200 00
2	Charitable Institutions	27,000 00
2	Exhibition Buildings	6,500 00
5	Storehouses	8,200 00
1	Simpson Building	200,000 00
1	Osgoodby "	35,000 00
1	McKinnon "	45,000 00
2	Globe (2) "	32,000 00
1	Jamieson "	27,500 00
1	Dental College	29,000 00
1	I. O. O. F. Building	130,000 00
11	Miscellaneous	8,740 00
371		$1,346,810 00

By far the most important building in the above list is the departmental shop for R. Simpson, built with iron skeleton, encased with brick and fire resisting material. The McKinnon building is also of the skeleton type. Such buildings are expensive, but they have manifest advantages, and are likely to grow in favor as wealth becomes greater. The Globe building is of the same class.

Of the sum set down for churches, by far the largest portion is for the new synagogue, not yet built, though the permit has been taken out. It is to cost $25,000. Toronto has not added much to her ecclesiastical architecture during the year.

The two charitable institutions are the House of Providence and the Fegan Boys' Home. Neither of them present any very striking features.

Two new fire halls figure among the new buildings. They are situated on Dundas and Richmond streets. The former contains apparatus for the protection of a part of the city which is entitled to fuller protection, the latter provides accommodation for the new apparatus procured after the fires of last winter.

The principal new manufacturing buildings are those for the Toronto Lithographing Co., the Metallic Roofing Co., the Gendron Manufacturing Co., and a large addition to Kemp's stamping works.

A considerable sum has been spent on eight hotels. The new building on the corner of Church and Carleton streets represents a large proportion of this outlay.

The Jamieson building on the corner of Yonge and Queen streets, which forms the subject of an illustration in this number, is a good specimen of architecture for mercantile purposes.

The Foresters' Temple, in course of erection, will be one of the most striking of the season's additions to Toronto's modern structures. It is the most expensive by far for which a permit has been taken out, with the exception of the Simpson building.

Considerable progress was made with the new municipal building, and it is now almost ready for the roof. The new Union Station has been completed and occupied.

There have been a number of handsome residences erected. Brick is the prevailing building material for these as well as for business blocks. The class of brick is improving.

Though Toronto has not recovered from the disastrous effects of the boom days, a substantial advance has been made in her growth the past season, and she is yearly assuming a more metro politan appearance.

MONTREAL.

The year 1895 was an exceedingly poor one in Montreal for those engaged in building operations. Although 1894 was an unsatisfactory year, 1895 was much more so. Comparison can best be made with the aid of figures, which speak more eloquently than words :—In 1894, 382 permits were issued, representing an aggregate value, according to the Building Inspector's report for the year, of $1,634,900 ; while in 1895 only 109 permits were issued, representing an aggregate value of about $900,000.

The buildings erected are classified as follows : Dwellings, residences and stores, 98 ; warehouses, 2 ; convent, 1 ; school, 1 ; departmental store, 1 ; miscellaneous, 6. The principal buildings now in course of construction being not very far advanced, only a small proportion of their cost can be included in the year 1895, as, for instance, the Canada Life Building and the Bell Telephone Building. The Departmental store now in course of erection, mentioned above, is that of Messrs. Ogilvie & Sons, at the corner of Mountain and St. Catherine streets. The convent is that of the Camelite Congregation that can be better termed monastery as it will not receive any pupils and is simply destined as a place of retreat for the ladies of that congregation. The school is the one erected by the Sisters of the Congregation on Roy street.

OTTAWA.

At the Dominion Capital building operations have been about the same in extent as in 1894, and represent an outlay of about $325,000. There has been a considerable expenditure by the city for permanent pavements, some $80,000 having been spent in that way. The new Union Railway station on the canal bank has necessitated a large outlay for approaches, etc., and a handsome building will be erected the coming year, but at present a temporary building only occupies the site. The work on the approaches, etc., represents an expenditure of about $200,000. The principal business buildings erected during the year are the Carbon Works, $35,000 ; Cluff's Hotel, $35,000 ; Cousin's office and shop building, $35,000 ; and a car shed for the Electric Co., $12,000. The amount expended on business buildings will foot up some $157,500, and on residences $115,500. The finest under the latter class is that erected by Mr. T. Birket, at a cost of $20,000. Public buildings represent an outlay of about $52,000, half of which was for additions and extensions. The material used was principally brick and stone, the residences being chiefly of the former material with sandstone dressings. The price of material and labor was about the same as in 1894.

The architects under whom the building in Ottawa was principally carried out were Messrs. Arnoldi & Ewart, E. L. Horwood, F. J. Alexander, A. M. Calderon, and Wm. Hodgson, and the

contractors were Messrs. Holbrook & Indertaut, P. Kennedy, A. Garvock, W. Matthews, T. A. Shore and A. Sparks.

As for the coming year, besides the railway station there will be an addition built to the Protestant Hospital, at a cost of $60,000, and a block of new stores on Sparks street to cost about $50,000. Other than these there is not much new work in sight yet.

HAMILTON.

In Hamilton there has been a considerable decrease in the value of the buildings erected. An estimate of the year's operations gives the figures at $293,465, a decrease from 1894 of $113,000. Beyond the new station and freight shed of the Toronto, Hamilton and Buffalo Railway, and the Hunter street tunnel for the same line, there is nothing calling for special mention. The Centenary church erected an addition in the form of a Sunday School building, otherwise operations have been pretty well restricted to residences. Brick is the principal material employed.

Outside the city, however, the Smelting Works Co. have been erecting extensive buildings and plant. The value of these is not included in the above figures, though it was principally Hamilton material and labor that was employed.

The prospect for this year is bright. A new collegiate Institute and school of pedagogy is to be built, which will cost some $60,000 or $70,000.

LONDON.

The year has been a very satisfactory one for architects and builders in the Forest City. No less than 150 buildings have been erected, at a cost of over $420,000. Residences have predominated, but there has also been great activity in church building. Two large Methodist churches have been erected to take the place of two destroyed by fire within a short time of each other. The power house of the Electric Railway Co., with its necessary adjuncts, represent a large outlay.

The following are the principal buildings erected, with their cost and the names of the architects engaged:—Queens' Avenue Methodist church, $100,000, E. Burke, Toronto, and H. C. McBride, London, architects; Dundas Street Methodist church, $50,000, John King, Toronto, architect; St. Matthews Church of England, $10,000, Moore & Henry, architects; Free Library building, $15,000, Herbert Matthews, architect; Y. M. C. A. building, $15,000, Moore & Henry, architects; London Street Railway Co.'s power house, $10,000, American architects; residence for Jos. Smith, $10,000, Herbert Matthews, architect; D. S. Perrin's residence in the country, $10,000, and biscuit factory, $12,000, Geo. Craddock, architect. Knox Presbyterian church, in London south, has also undergone alterations to the extent of $8,000.

Other large works have been completed, such as the two large steel bridges on the London and Port Stanley R. R., built by the Dominion Bridge Co. O. A. Graydon was the engineer. These bridges are 624 ft. long by 69 ft. high and 512 ft. long by 71 ft high respectively, costing together $54,000. Another bridge, by the same company, was placed over Javitt's pond, with a 264 ft. span and having a height of 30 ft. It cost $10,000.

Over a mile of asphalt pavement has been laid on Richmond street, from the G.T.R. station to Ridout st., at a cost of $6,600. The Barber Asphalt Co., of Buffalo, laid it.

The prospect for the coming year is considered good.

KINGSTON.

Very little building was carried on in Kingston during the year, the amount expended not exceeding $70,000, which is less than for the preceding year. Operations in business and public buildings were confined to alterations and repairs, and any residences built were of the cheaper class. Materials and labor commanded lower prices than in 1894. It is a little too early to say what the year 1896 will bring forth, but at present there is no prospect of much activity.

BELLEVILLE.

As anticipated a year ago building has been much more active in this young city than in 1894, nearly double the amount having been expended on new buildings. The structures calling for special mention are St. Andrew's church, to replace that destroyed by fire, at a cost of about $30,000, and an annex to Albert College, representing an outlay of some $20,000. Messrs. Darling, Sproatt & Pearson, of Toronto, were the architects of the former, and Messrs. Geo. M. Miller & Co., of the latter. In addition there have been a number of fine residences built, Mr. Thos. Hanley, architect, having had the oversight of four. The material used was principally brick. Material and labor were about the same in price as in 1894. The total outlay was from $170,000 to $200,000. An electric street railway has been built. The prospect for the coming season's operations is hopeful.

BROCKVILLE.

There has been greater activity in this town than for several years, a spurt having set in in the building of terrace houses renting at from $20 to $30 a month. Several such have been erected. Additions have been built to both the General and St. Vincent R. C. hospitals, at a cost in each case of somewhere about $10,000. A goodly number of small houses were built by workmen for their own accommodation, while at the new asylum, just east of the town, a number of cottages have been completed and occupied. Work has also been commenced on the International bridge, and considerable stonework done on the piers. The outlay for buildings (the asylum and bridge not included) will amount to some $175,000 or $200,000. The Cossitt terrace represents $20,000 and the Publow terrace $23,500. For the former Mr. G. A. Allan was the architect and Messrs. Simpson & Hagarty contractors for all trades except plumbing and heating, which was done by Barsalow & Co.; for the latter Mr. O. E. Liston was architect, with the same contractors, except plumbing and heating, which went to Mr. W. S. Gamble. The prospect for the coming season is promising. A summer hotel is talked of, and an electric street railway is a certainty.

ST. THOMAS.

There has been a falling off in building operations in St. Thomas the past year and operations have been confined pretty much to a good class of brick residences and a few business places. The price of building materials has been a little higher than in 1894, but labor has been about the same. One firm of architects, Messrs. Long & Long, have had work in hand representing an outlay of $57,100, a considerable share of which was, however, outside the city, including a number of churches, and the Industrial Institute at Mencey for the education of Indians, which cost $30,000. The prospect for the coming year is only fair.

STRATFORD.

About $85,000 has been expended in Stratford, which includes $15,000 spent on the restoration of the post office. The balance was chiefly on residences of a cheap class, largely brick veneer, and the total shows a falling off of $20,000. Work being scarce, labor could be had at a lower rate than formerly.

CHATHAM.

Chatham having reached the dignity of a city the people have felt prompted to put on metropolitan airs, and building operations took on a briskness accordingly, the record showing a considerable excess over 1894. Probably $150,000 will approximate the outlay. The principal buildings were a fanning mill factory, costing $25,000, T. J. Rutley, architect, Richard & Co., contractors; Presbyterian church, $8,000, Jas. L. Wilson, architect; Methodist church, brick veneered, $1,800; and brick houses costing from $5,000 down. Both brick and lumber were cheaper. Wages were about the same.

SARNIA.

Sarnia erected a general hospital of brick at a cost of $25,000, of which Mr. H. G. Phillips was architect. Other operations were confined almost entirely to a cheap class of residences, largely of wood, and $35,000 will probably cover the cost of buildings erected in the town during the season.

COLLINGWOOD.

A marine hospital costing $5,000, a Presbyterian church, $5,600, the Globe hotel $14,000, and additions to the Collingwood Meat Co.'s buildings, $4,000, help to swell the value of building operations in this town. The outlay has been some $20,000 more than in 1894, and the total will not be far from $88,000, the balance being principally residences. Brick was the principal material used. Skilled labor was higher. For the hospital Mr. Fred T. Hodgson was architect and Peterman & Sons contractors; for the church, Gregg & Gregg, Toronto, architects, Bryan Manufacturing Co., contractors; for the hotel, F. T. Hodgson, architect, and Wilson Bros., contractors; for the Meat Co.'s buildings, John Wilson, architect, and the Bryan Mfg. Co., contractors. Next season it can hardly be expected that so many new buildings will be erected.

QUEBEC.

The ancient capital, respecting which a falling off was noted in last year's review, has experienced a further retrograde movement, which does not augur well for the future of this interesting old city. About $350,000 has been expended, of which $125,000

was spent on a new city hall, and a considerable proportion of the balance on the Church of the Patronage. About 40 per cent., 35 per cent., and 15 per cent. respectively--will indicate the proportions of the total spent upon public, business, and residential properties. The material employed was about one-half stone, and one-fourth each brick and wood. Brick has been about 20 per cent. lower in price, stone and wood about the same. Bricklayers' wages were about 50 cents per day less, joiners' 20 cents less, and laborers' about the same. For the city hall Messrs. Tanguay & Vallee were the architects, and Messrs. Gingras, Gurcherean, Kane & Picard, contractors. For the church, Mr. Berlinguet was the architect and Mr. Paul Breton contractor.

OTHER TOWNS.

Other towns from which reports have reached us do not seem to have experienced much activity. Buildings have been erected in Galt to the value of about $30,000; Owen Sound, $20,000; Guelph, $120,000; Brantford, $150,000; Woodstock, $100,000; Berlin, $117,000. In Guelph five miles of electric street railway and five miles of cement sidewalk (making a total of 12 miles) have been built, and Woodstock rejoices in a new market building. Operations in the towns consisted principally in the erection of dwellings, the condition of business not warranting much outlay for premises to be used for purposes of trade and commerce.

MARITIME PROVINCES.

During the last eighteen or twenty years building operations have been very brisk in the principal parts of the lower provinces, particularly in the smaller towns and villages of Nova Scotia and New Brunswick. These include buildings for various purposes, churches, factories, mills, hotels, colleges, schools, stores, post offices, public halls and dwellings, the greater number, of course, being of the latter class.

Travelling through the provinces one cannot help wondering at the lack of taste displayed in the erection and locating of recently built dwellings. Few indeed, comparatively speaking, possess any of those pleasing architectural features such as are seen on houses designed by skilful architects.

Occasionally an architect's services are called into requisition in designing a dwelling for the country or smaller towns, and if the owner gives him a chance at all to spread himself in his efforts to produce a good design, the result is usually satisfactory to the architect, client and all who chance to see the building.

Unfortunately, however, when people outside the cities contemplate the erection of dwellings, the usual course is to consult a carpenter, get his ideas and apply a few of their own, adopt some features from one neighbor's house and some from others, regardless of harmony and architecture. In some cases the patent medicine system is adopted and buildings are erected from plans found in some American publication. In either case the owner usually finds at the end that he has made a mistake and got an unsatisfactory house.

When an architect is employed the owner invariably makes the amount to be expended so limited and requires so much house for the amount, that there is little margin for ornamentation.

Building is more expensive in the lower provinces than in Quebec or Ontario. Handsome brick and stone residences have been built in the latter provinces for less money than an ordinary frame house of similar dimensions costs in the former. This is owing to the lack of facilities in the shape of manufactories in the lower provinces, and to some extent to the scarcity of good local woods for finish purposes, spruce being about the only stock of any importance obtainable. Good pine is a thing of the past, and birch, maple, oak and ash are not to be found in trees of sufficient size to make good finish stock.

Many builders in the country towns, and some in Halifax, import their pine doors, mouldings and other finish, from Ontario factories.

In the cities there is a lack of good general system among builders in carrying on their operations. They are slow to adopt new and improved methods to facilitate works. Still owners are inclined to stand by the old hands and very wary about letting work to outsiders.

Building in the lower provinces is done almost entirely by contract, the several trades being let to one party, who sublets all but his own trade, and is responsible to the owner for the whole.

ST. JOHN, N. B.

The number of building permits issued in St. John for the year was 82, being about one-third more than in 1894, and the outlay on the same $178,475. This does not include Carleton, on the opposite side of the river, which is a separate municipality. Including that suburb probably $250,000 has been expended. The only buildings calling for special mention are a Baptist church, cost, $18,000, H. H. Mott, architect, W. L. Prince and Robt. Maxwell, contractors; the Aberdeen Schoolhouse, cost, $20,000, R. Dunn, architect, B. Moony & Sons, contractors; Wygoody buildings, store and warehouse, $20,000, H. H. Mott, architect, Charles F. Tilley, contractor. Mr. G. Ernest Fairweather has built an addition to the Royal hotel, and three saw mills have been rebuilt, and a corn mill. Other operations were principally in the way of two-storey wooden dwellings. Twelve buildings of brick and stone cost $93,050, and seventy of wood cost $85,425. Material and wages stood at about the same figures as last year.

HALIFAX, N. S.

The capital of Nova Scotia reports a considerable increase in the total value of buildings erected, but a larger number of cheap dwellings. The details are, dwellings 97—brick 4, wood 93; business erections 50—brick 6, wood 44; public buildings 3—brick 1, wood 2. The value of these structures is about $600,000. The most important building for which a permit has been granted is the drill shed, a brick and stone building estimated to cost $200,000. Other buildings calling for special mention are: Deaf and Dumb Institute, $50,000, brick, J. C. Dumaresq, architect, S. A. Marshall, contractor; Electric Railway Co., car building, $25,000, brick, Rhodes, Curry & Co., contractors; I. C. R. freight house, $30,000, brick, R. C. Donald, contractor; Peoples store, $15,000, brick, J. C. Dumaresq, architect, S. A. Marshall, contractor. Brick and iron have been slightly cheaper in price, other materials about the same. Wages have remained about as in 1894, except that the demand for carpenters and labourers being great there was a slight advance. New sewers, new streets and pipe laying for the new gas company have made a demand for labour, and next season a new drill hall and new gas works will keep up the record for building.

WINNIPEG, MAN.

About $650,000 will represent the building done in Winnipeg the past season, $200,000 of which was expended in putting stone foundations under old buildings, with the necessary plumbing, heating and drains. The speculative building which we condemned in last year's review has been well eliminated, and a remarkable degree of caution exercised. This has resulted in keener competition among contractors, leading to low prices and less profit. Building materials have been a shade under former prices, skilled labour has stood at the old prices, but unskilled has been a little less. Three new school-houses have been built and Wesley college completed. A few good business blocks have been erected, and a considerable number of houses, but not so many as the previous year. The Dufferin school house cost $26,000 and the Argyle $25,000. Mr. C. H. Wheeler was architect of both. The Mulvey school-house represents $23,000. Mr. Geo. Browne was architect. The expenditure on Wesley College was $35,000. Peters and Brown were its architects. Mr. Wheeler also supervised the erection of the Campbell block on Main street, cost $17,000, and a fine red brick and stone house for Mr. Hugh John Macdonald, costing $11,000. Mr. Browne was the architect of a Masonic Temple costing $16,000. Mr. H. McEwen had the Christie block in charge, costing $17,000. Mr. Peters planned Ashdown warehouse, costing $40,000, and Mr. Griffiths a warehouse for Mr. Ryan costing $10,000. Wood is still the predominating material in the city and nearly all the dwellings are built of that material, on stone foundations.

The outlook for the coming season is uncertain. Though there has been an immense crop in Manitoba, prices are low, and there is not much encouragement to launch out into enterprises involving considerable expenditures.

OTHER NORTH WEST TOWNS.

At Brandon the season's building represents some $20,000; at Minnedosa $32,000; at Carberry $22,000, and at south Edmonton, a four year old town, $75,000. The most important building at the latter is an oatmeal mill of Brackman & Ker.

VANCOUVER, B. C.

This has been an exceedingly dull year in British Columbia, except perhaps in some of the mining centres, and in common with the rest of the country the cities have not progressed to any marked degree. Building operations have been backward and there has been a great scarcity of employment. Vancouver, the most progressive city of the province, can show new buildings to the amount of $100,000, and these are chiefly small cheap dwellings of a speculative class. Any business structures are of most similar class, and the only public building reported is a small wooden school house. Both materials and wages are down in price, and the trade generally is much depressed. There are too many men to do the work required. The only building of any account in prospect is a large hotel for Messrs. Crean & Thomas, of which Mr. Wm. Blackmore is the architect.

NEW WESTMINSTER.

What has been said of Vancouver is also true of New Westminster. Only two buildings of any consequence have been erected, a drill hall of wood, costing about $7,000, and additions to the provincial lunatic asylum, principally for a doctor's residence, costing $6,000.

VICTORIA, B.C.

In Victoria, though operations on business and residential properties have been restricted as in other British Columbia towns, a large sum has been expended on government buildings. Work has been pushed forward on the new parliament and departmental buildings, which, when completed, will represent an expenditure of not far from a million dollars. They are of handsome architectural design and will be a credit to this young province. In fact they are quite beyond present requirements, but the government has faith in the future, and has built with an eye to a large increase in public business in the time to come. The work was executed from the plans of Mr. F. M. Rattenbury. The contractors were: masons, McGregor & Jeeves; joiners, Bishop & Sherborne; plasterer, R. Drake; iron work, Albion Iron Works; coppersmiths, Perry & Turner; plumber, R. J. Nott; heating, Bennett & Wright Co.; painter, E. Spillman.

The new post office, which is also under way, will when completed be a handsome building. It is being erected under the superintendence of the government architect, and will cost about $175,000. The contractors are Messrs. Elford & Smith. These two works have given employment to a large force of men, who would otherwise have found it difficult to obtain work. Besides the public buildings mentioned above, about fifty small houses have been erected. Considerable alterations to existing buildings have also been made. Wood and stone have been used to the greatest extent, and the price of materials has been about 10 per cent. below the previous year.

In other British Columbia towns there has been great stagnation, any buildings erected having been of the cheaper class.

POINTS FOR YOUNG CONTRACTORS.

By David G. Baxter.

The lids are ivy, grapes in cluster lurk
Beneath the carving of the curious work.
—Dryden.

WHAT apprentice boy in the building trades, let him belong to what line he may, if he possesses one grain of inherent ambition, does not look forward to the dim and distant future with a burning desire that he, like his principal, shall be a contractor, an employer of men, a purchaser of material, a director of works; yet little seems he to dream of the hard study, the unremitting work, anxiety and worry, the rough unsympathetic buffeting he must pass through before he obtains his final settlement on his first job, nor that the harder he studies in the following lines, the more he is guided by the following facts, the more satisfactory this settlement will be, the more gratifying all future settlements shall be found.

Every effort is the result of some cause. A man decides to take contracts, to become a contractor—there must be some cause leading this man's brain into this groove and producing from him a contractor. Will he succeed or will he not? It all depends upon his ability, his resources, his education, yet affected and modified to a great extent by that cause, that chain of circumstances may we call it, that led him into this branch of human endeavor. This man would not go into the dry goods or into the grocery business because he knows that he does not understand either of them, and that he would naturally be unsuccessful. For a like reason he should not undertake to set up as a contractor unless he understands fully and completely that line of contracting he intends to take up. Throughout the country we find men without any previous preparation taking or endeavoring to take contracts because they are out of work through hard or dull times affecting their former contractor employers, or because they have become dyspeptically dissatisfied with things in general and with ordinary hard work in particular. These men float aimlessly around figuring on proposed jobs, and having no previous reputation, are forced to take what work they can manage to get at ruinously low prices, much to the detriment of good work and to the injury of reliable, established contractors. These men are to-day working day work and to-morrow contract work; we cannot call them "contractors," but must designate them "jobbers," and as such dismiss them from consideration.

There is another class who, with inborn wish to succeed and to make the world brighter and better, before commencing business study for years their work in its every phase, its every form and give it—their chosen life work—the full consideration and deliberation that it deserves; these, when they do start out, instil confidence, and in confidence get better prices and more satisfactory settlements than the men who, without previous preparation, assume to take contracts because they were dissatisfied workmen.

It is to this class of ambitious men that these words are addressed, especially to those located in places outside the larger centres of civilization, when the question of what or what not to do, as preparatory for the future, is often a very serious one with many young men in the building trades, in whose breasts is firmly implanted a desire to excel. I do not want to be interpreted as saying that a building mechanic suddenly thrown out of work should do nothing till some contractor can give him work—that he must not take work direct from the layman himself—far from it; let him do anything and everything in his power to make an honest dollar, but I do most strongly dissuade him from thinking of becoming a permanent contractor or firm, himself as principal, taking anything except small repairs and such like, unless he be thoroughly equipped for the work. This for his own good. In regard to the omnipresent genius of dissatisfaction, the sooner he taketh his departure for the sunny slopes where the woodbine twineth, the better for all.

A contractor to be successful in turning out good work and in making money, must possess a great amount of practical ability; he must thoroughly understand, practically, every branch of his work in its ever-changing phases; besides he must have acquired a fair smattering of the theoretical side, to understand, if not to calculate, the laws of strength and stability. If he be a bricklayer he must have an idea of the principles of foundations, arches, piers, buttresses, etc., besides a rough knowledge of the chemical and physical properties of limes, cements and other materials. If he be a carpenter, a knowledge of the governing principles of roof and other trusses, beams, columns, etc., is indispensable, and an intimacy with the nature of woods is also essential. If he be a plumber a familiarity with sanitary science and an insight into the laws of traps, vents, flow of water and a hundred and one other points is imperative; and so on through every trade; in short we are brought face to face with the survival of the fittest ultimatum—that to attain to full success a contractor must understand all about his particular line of work that he can learn by watchful experience and by incessant unremitting study during his spare moments.

It may be said that it is impossible for a contractor to study any theory because his education is as a rule such that it does not fit him to understand formulas and technical terms, and even could he elucidate them, he as a rule cannot spare the time. All that can be said in reply is, that if he has the slightest desire to get to the top of the ladder he will find the time or make it, and he will repair or replenish his education up to the point which is necessary to understand the said formulas and technical terms. This can be no very difficult task, for in the market there are hundreds of plain, simple, reliable books on each trade, easily gotten hold of and as easily understood, teaching the computation of strains and how to meet them, the guiding rules, etc., in such simple form that the most ordinary education can fully grasp them. Then again he will contribute greatly to his own interests by subscribing to a couple of trade journals devoted to his own line and to at least one architectural paper. These will keep him in touch with new methods and practices being perfected or brought out and with newly introduced materials, tools and other mechanical devices. In addition, he should be the possessor of a library of trade catalogues, which he should study carefully and repeatedly. Technical journals supplemented by trade catalogues are without doubt the very best educative mediums that a contractor or mechanic can possess. The more knowledge a contractor can acquire the more confidence he naturally will receive from his employees, and this knowledge he should try as far as possible to transmit to them; he should endeavor to make them thinkers and students as well as workers.

A thorough acquaintance with business methods is imperative. Book-keeping, banking, exchange, correspondence, etc., should be to the contractor familiarities. This knowledge can be easily acquired if both eyes be kept open and a little assistance be sought from some qualified friend, or a short time might be profitably spent in some good business college, no more than merely enough to acquire simply a rough proficiency in business practices; more would only be a waste of time. On this score of business methods the embryo contractor need suffer no uneasiness, for these points are so very easily acquired and from so many sources.

The acquisition of a reliable unfailing judgment of human nature is of inestimable advantage. The power to judge character and motive in employer or employee is a very beneficial adjunct to success; it teaches the contractor the various whims and caprices of his men and just how to handle each individual one so as to get from him the greatest amount of perfect work in the shortest possible time. This faculty comes quite naturally to some, but it can be easily acquired by all; any rule for its study other than "watch faces" would be hard to give.

Interpretation of plans and a knowledge of the customary terms used in specifications is of course an absolute necessity. Let our embryo contractor look over and study every plan he can possibly lay his fingers on, and a friendship formed with some architect's clerk will be a great benefit in the way of explanations of lining and coloring, use of scales, rules for estimating, and many other valuable points.

Then there is what may be called the legal aspect. An acquaintance with the law relating to contracts, liens, garnishes, etc., will save a great deal of troublesome uncertainty and worry. A wonderful amount of information on this point may be obtained from reading the various technical journals. That this is a point of great moment to contractors as well as to architects seems to be recognized by these papers, which are giving a good deal of attention to it by publishing particulars in general, and judgments in building cases. Take an interest in and carefully follow all trials of building cases that you possibly can, especially those in your own locality, and note the legal points brought out by counsel and judge.

It is, of course necessary before beginning business to have a certain amount of cash capital, at least enough to carry through the first few jobs till returns begin to come in, and in no case should the new beginner allow himself to be seduced into taking more work than his capital will warrant, no matter how glittering the prospect, no matter how sure the success may appear. His ability and willingness from the start to pay promptly for materials will engender confidence in, and reliance on him by the supply dealers, and when he comes to take larger contracts it will be pleasantly surprising how his custom will be sought and how much better the bargains he can make than can his slip-shod brother contractor who has no such reputation.

Estimating correctly is a very vital point with any contractor. A faulty estimate may mean a very heavy loss or it may be the means of throwing him out of the work. Estimate carefully, considering every point in the plans and specifications; miss nothing. Low estimates are often caused by an improper conception of what is to be done, a loose consideration of the values of different features; get the quantities and qualities correct and the values as low as possible, and if this does not secure the work let the other fellow have it and welcome. Never sign a contract before again considering the amount and class of work to be done and materials to be supplied, and should at any time some unscrupulous proprietor request that the job be taken at a certain reduction from the tendered price, don't jump it! Consider it first; don't take work for the sake of work. When figuring make out the quantities in tabulated form, entering every article, every item with its estimated value opposite, all being done in a regular form—each proposed job separately. Whether the job be secured or not keep all of these estimates in some permanent shape, for they will be a record of the past and a valuable guide for the future. While the work is progressing for each building separately, keep track of every article sent to the ground, every article returned, and a correct account of all labor spent on the work; enter the cost opposite each item. This record will fill a two-fold purpose—that of showing the relation between estimated and actual cost, being the loss or gain on the whole or on each item, and also teaching a most valuable lesson for future tendering.

Study the markets, the rise and fall in prices of materials not only in your own line but generally in all other lines, and particularly see that the technical journals you subscribe to give you the regular market quotations up to date, of course discounts and freight rates change the face of matters considerably, but the prices quoted will always be a safe criterion by which to follow the everchanging tide of values. These quotations are customarily given for the largest markets and which are always specific.

ally designated. Most certainly when it comes down to buying, correspondence must be resorted to. By the way, let me add that another benefit of the library of technical journals is that they tell in their advertising pages the names and addresses of the principal dealers in each line; this fact alone is worth the subscription price to any contractor.

In regard to extra work a little advice might not be out of place. When a proprietor or his agent, who is as a rule the architect, suggests changes, additions or deductions, at once look up the specifications and see exactly how the matter stands and do not make such deviation from the amount or class of work contracted for until you have first amicably adjusted with the proprietor the price that is to be added to or deducted from the contract amount; then you will know how you stand and the proprietor will know how he stands, and there will be saved all the untold squabbles and dissatisfactions over the "extras" at the final settlement.

A contractor has duties to his employer as well as to himself; this he should always bear in mind. The better he can satisfy his employer the better it will be for his reputation now and to come; one dissatisfied proprietor will by far outdo the good that ten satisfied ones can do him, and he will usually try to do it, too. When I advise trying your level best to satisfy the proprietor, I do not say to exceed the specifications, for that is uncalled for, but success can only be obtained by conscientiously filling them to the last letter.

The relation a new beginner bears to those previously established in his line in the same locality is at first on the part of the old heads often one of suspicion. This is human nature. To speculate on his qualifications, his resources, his everything, is only natural in those to whom he is now to be a rival. Barriers may be thrown in his way—but what of this, fair, square dealing will outlive all. Keep a stiff upper lip; be honest by all and fear none. This procedure if conscientiously lived up to will give to any man a certain noble personality, a certain impress of absolute reliability that all the storms of adversity or enmity cannot shake, that will stamp that man as a man among men, and success is assured.

ILLUSTRATIONS.

RESIDENCE AT LONDON, ONT.—HERBERT MATTHEWS, ARCHITECT.

CATHEDRAL CHURCH OF WELLS, SOMERSETSHIRE, ENGLAND, FROM A DRAWING BY MR. ERNEST WILBY.

Wells Cathedral, 1148-1407, is one of the most interesting of English Cathedrals, and will merit a visit by the travelling architect or student. The view presented shows the easterly end as seen from the Bishop's garden.

MARKET BUILDING AT WINNIPEG, MAN.—GEORGE BROWNE, ARCHITECT.

The building is built of stone and local buff brick. The exterior walls above ground line are hollow, pointed and painted on the interior side; no plaster. The roof over centre portion has a clear span without the beams or rods; cost $24,000.

"C. A. & B." COMPETITION FOR A JEWELRY STORE—DESIGN SUBMITTED BY "ROMANESQUE"—AWARDED FIRST POSITION.

The whole of the front of the first storey, the columns, sills and lintels of first, second, third and fourth floors, the arches, spandrils and string course above third floor windows, the panelling under cornice and the large brackets at ends of cornice to be of the best quality of Cleveland blue stone. The rest of the front wall, excepting cornice, to be faced with the best selected buff bricks of an even tone and backed with good ordinary brickwork.

"C. A. & B." COMPETITION FOR A RETAIL JEWELRY STORE. DESIGN SUBMITTED BY "PENNY"—AWARDED SECOND POSITION.

Foundations are to be built of hard gray or sewer brick on footings of stone. All walls except the front are to be of good white brick. The front above the ground floor is to be built of Don Valley buff pressed brick. The ground front is to be of Berea stone, as also are all sills, capping, strings, cornices, pillars, and panels. All the partitions above the ground floor are to be 4½" porous terra cotta.

THE JAMIESON BUILDING, TORONTO.—CURRY, BAKER & CO., ARCHITECTS.

As the land upon which this building is erected is possibly the most valuable in the city of Toronto, it was absolutely necessary to make the most of the site. Every inch of frontage on Yonge street has a value of $200.00, and it was consequently imperative that none of it should be wasted. The glass line of the store windows is within 3½ inches of the face line of building with the supporting columns inside of same. The result has been satisfactory, for although the ground floor of the building is almost all glass it has not the appearance of standing upon spars, which is characteristic of many buildings with large plate glass surfaces. There is an entrance from Yonge street and one from Queen street, the balance of the frontage being devoted to showing goods, thus forming a large and continuous store window extending from entrance to entrance. Along the inside walls there are two galleries about 13 feet wide, through which the elevator and staricase are carried. The gallery at the west end will be used for office, that on the north side for showing goods. The available space on the store floor is very largely increased by means of the galleries. The basement will be used for selling goods, and is exceedingly well lighted. Much thought was devoted to the lighting of the basement, and the result is most satisfactory. Three of the upper floors will be devoted to thesale of goods, while the top floor will be used for manufacturing purposes. The upper floor is lighted by three very large skylights. The floors throughout are carried on steel beams supported by cast iron columns.

The building is not fireproofed, but every care has been taken to prevent the spread of fire. There is no strapping upon any of the walls, and the ceilings are plastered upon metal lath. A stand pipe is run up through the building to the roof with hose on every floor. Ohio free stone is used in the ground storey, including the corner, and stone and brick in the first storey. The balance is built with a very light buff pressed brick with terra cotta arches. The cornice is of galvanized iron painted to harmonize with the brick.

"STOKOSAY CASTLE."

The view given in this number of this interesting old mansion shows the North Tower from the church-yard looking across the moat. On the left is seen the Tudor "black and white" gatehouse, of which a drawing with details and a general description was published in this paper last March. At the northern end of the great hall a short flight of steps leads downwards into an apartment which is probably the most ancient part of the buildings; the very narrow loop holes show that it was intended for defence. In a projection of this chamber is a well, 150 ft. deep, which was nearly filled up, but has recently been cleaned out. A boar and deer skull and a pair of roebuck's horns only were found. An original staircase of solid oak baulks, cut through diagonally, leads from the hall to the first and top floors. On the first floor are two apartments which are named the priest's rooms. The innermost room, probably used as an oratory, is laid with a number of tiles of good design, several the device of a centaur, an archer and coats of arms. A projection in the angle contains a small recess. Little change has taken place except the insertion of an ogee window, which will be noticed on the drawing.

The upper room is of very irregular shape—a well lighted apartment 25 ft. x 30 ft. This half timber structure was probably put on at the same time that the gatehouse was erected, and replaced the original parapets of the tower. This room has probably been divided by light partitions. There is a fine example of an early English fireplace, with side pillars, down which runs a rib. A wooden frame resting on corbels which once supported a wooden hood still remain. Though the upper part is gone, the line is defined by the groove in the wall.

The floor of this room partly rests on brackets projecting from the walls, and is thus of greater size than the lower structure.

The roof principals are very irregular. The ridge is on the twist and anything but level, but they got over these slight difficulties by giving gentle sweeps to the tiling. The basement walls are very thick, and it will be seen they have considerable batter.

The great hall is lighted by three large windows on either side filled with early English tracery, grooved for shutters, and in the lower divisions holes sunk in the stone to admit iron bars. The far gable seen in the sketch is the solar with the battlements of the south tower above.

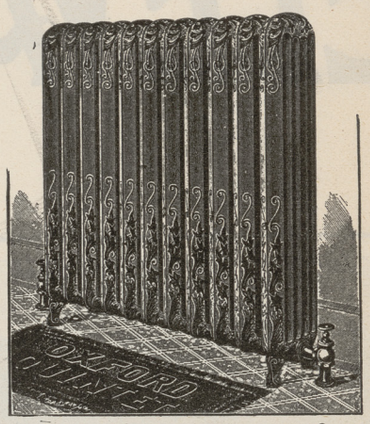
This is not the general view, which, together with measured drawings, I hope to give at a future date and with a fuller description. EDWARD SWALES.

Comfort for 1896

CAN BEST BE SECURED BY USING

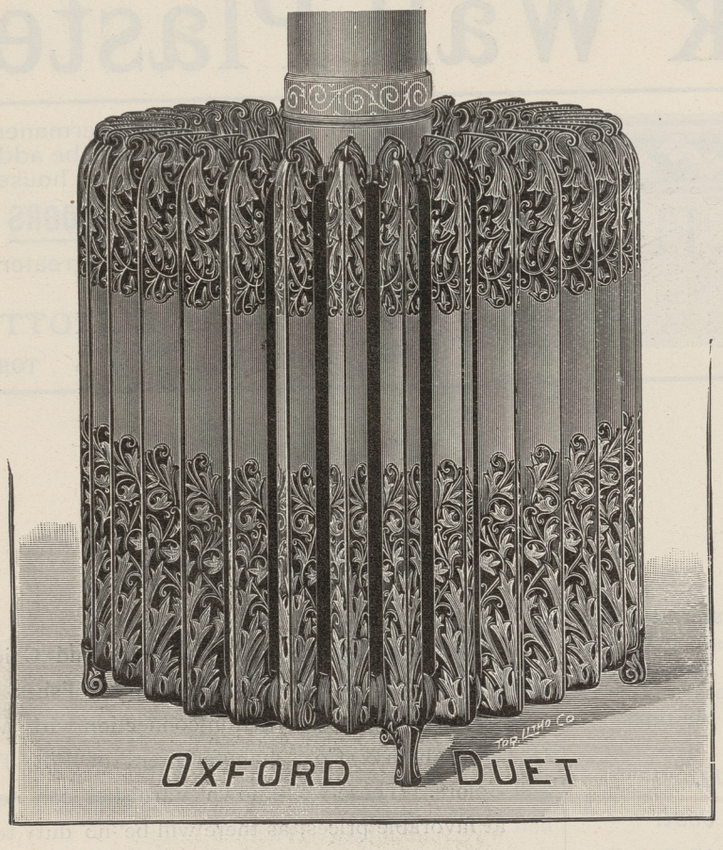
OXFORD... RADIATORS

For HOT WATER and STEAM



They are Standard Goods
Mechanically Correct
Never fail to satisfy
Iron to Iron Joints, consequently
No Leaks
Perfect in Every Detail

Perfect Circulation
Large Heating Surface
Variety of Style and Size
Equally Adapted to the Public Building, Mansion or Cottage



These RADIATORS connected with

OXFORD BOILERS

solves the problem of satisfactory heating

The OXFORD Radiators are positively the ONLY ones without Washers or Packing in the joints.

THE GURNEY FOUNDRY CO. LTD. TORONTO

THE GURNEY-MASSEY CO. LTD. MONTREAL

Send for Catalogue with Full Description and Testimonials.

TORONTO SKETCH CLUB.

A meeting of the Toronto Sketch Club was held in the office of Mr. E. B. Jarvis, on Tuesday, Dec. 17th, when designs for a gable were submitted by the members. After a lengthy criticism by Mr. Jarvis, a discussion took place and the designs were voted on. Mr. R. T. Johnson's design was placed first. His design was a beautiful bit of French half timbered work and the pencil rendering was perfect. Mr. W. P. Over was placed second with a design for a church transept gable, English perpendicular Gothic. Thirteen designs were submitted at this meeting.

The third regular meeting was held in the office of Messrs. Darling, Sproatt & Pearson, on Monday evening, January 6th. The subject for competition was a mantle and fireplace. Mr. Frank Darling acted as critic. This meeting was hardly as well attended as the previous ones, although eleven designs were sent in. It was decided in voting for the designs, to give one place for draughtsmen and one for students, for, as it was before, the students had practically no chacne of obtaining a place. Mr. R. T. Johnson's design was placed first for the draughtsmen. It was a beautiful composition in the style of Francis I. Mr. Ford Howard's design was placed first in the students.

The next meeting will be held in the office of Messrs. Strickland & Symons, on Tuesday, January 21st, when Mr. Wickson will criticize. The subject is one more for composition than detail. The problem is : A Tower at the corner of a Court-yard, and an entrance at one side and gable at the other side of Tower. The view is to be taken from inside the court. The size of paper was also specified to be 250 inches area.

ONTARIO ASSOCIATION OF ARCHITECTS.

The annual convention of the above Association is in progress at the School of Practical Science, Toronto, as we go to press. A complete report of the proceedings of this convention will appear in the ARCHITECT AND BUILDER for February.

PATENT PLASTERS.

By "Plasterer."

PATENT plasters, or machine made mortars, have come to stay. It would therefore appear to be the duty of our architects, and more particularly of the department of the School of Science devoted to Architecture, to give some attention to their patents, formula and chemical constituents.

Without pretending to know all of the claimants in this line, I can mention Adamant, King's Windsor, Selenite, Paristone, Rock, Paragon, Standard, Diamond, Economic, Acme, Aggatite and Royal. The last three all claim to be nature's own plastering as they are made from a clay or earth found in the Western States which requires only calcining to make cement. I understand that they derive their setting properties from magnesia or magnesite and lime carbonate in this clay. Our School of Science might enlighten us here, as it is most probable that there are similar deposits in Ontario. All the others are, I believe, compounded from gypsum as a base, and have, no doubt, an equal claim on nature. Selenite is English in its origin and has a good reputation there. It contains a much greater proportion of lime than other plasters.

Adamant, the first and most prominent, was the result of a patent by Carl Straub for a compound to increase the strength and hardness of calcined plaster. A company was formed in Syracuse which succeeded in making a good wall plaster from this patent. They then sold territorial rights throughout the United States and England—to make Adamant wall plaster from their patent and formula—retaining to themselves the manufacture of the chemical retarder and hardener upon which the patents were based and selling them to licensees. Their formula required the mixture of their chemical with calcined plastering sand and other ingredients, and the selling of a completed product ready for use with addition of water only. The local materials in different territories—even the sand and very often the water—differed so greatly that the licensees were obliged to alter and change the formula to such an extent that they became so expert that many of them made their own chemical and renamed their product. In this way most of the varieties in the market to-day have originated—many have changed their method by making the cement or plaster complete, excepting the sand, which is added by the plasterer when using the material. This cheapens the product by lessening the cost of freight and cartage.

In a factory where these plasters are made, the mixture is generally exact and governed by weights ; each maker has tested and mixed his proportions, and the resulting product is uniform. When one of these plasters are specified there is a reasonable certainty of strong sound work, although it may not look as well as the old lime mortar. Owing to the better material, it is more expensive and to keep down the cost it has to be put on very thin. This does not injure the quality of the wall, but the opportunity to straighten the defects of carpenter and bricklayer are greatly lessened.

In Toronto we have good lime and good sand, and the opportunity for these patent plasters has been confined to work that requires to be done quickly. The extra cost has had most to do with this. Two coat work with lime mortar can be done for 20cts. or less, where it is difficult to execute work with any of the patent plasters for less than 30cts. per yard. This combination was too much for the Adamant Co. who were compelled to close their Canadian branch from lack of business. This is to be regretted, for their completed product ready for use by adding water was very convenient and reliable ; it offered fewer opportunities for adulteration and its place is only partly filled by the others at present on the market, as they all sell their cement without sand. It is to be regretted that the first cost always plays such an important part in the completion of our buildings. Expensive papers and elaborate decorations are often put upon plastering so bad that it cannot hold its own weight, with disastrous results in many instances.

Most of the plasters in the market are good and deserve attention. If they are not used and specified much greater care than is usually exercised by architects is required if they wish to get good lime mortar. I would like to see an intelligent interest displayed in this subject, and hope these desultory remarks may assist in drawing attention to an important but much neglected feature of architectural works.

Pearce v Coghill was an action under the Workmen's Compensation Act and at common law to recover damages for injuries sustained by plaintiff, a labourer employed by defendant Coghill to work upon a contract for the laying of sewer pipes at the foot of Yonge street, in the city of Toronto, by the falling of a pipe upon him, which broke his thigh. The Constructing and Paving Company were the contractors for the work, and the defendant Coghill was a sub-contractor. Judgment was given for the plaintiff, the trial judge, Chief Justice Meredith, holding that there was no defect in the material or plant supplied by the company, and that the company did not supply the scantling used as a pry in lowering the pipes, which was therefore part of the machinery or plant in use. Plaintiff contended that the machinery thus used was dangerous and not fit for the purpose, and that the accident would not have occurred had a derrick been used. Geo. Ross, for defendants, the Constructing and Paving Company, contra. The appeal taken by the plaintiff's solicitor from this judgment dismissing the action against the Construction and Paving Company, was argued before Justice Rose and McMahon, in the Common Pleas Division of the Divisional Court at Toronto, and was dismissed.

PERSONAL.

Mr. Charles Sproatt, late City Engineer of Toronto, and father of Mr. A. Sproatt, architect, of that city, died unexpectedly at his home in Innisfail, Alberta, N.W.T., on the 28th of December.

Mr. Henry Langley, of the architectural firm of Langley & Langley, Toronto, recently met with a serious accident. While engaged in superintending a building on Glen road, he fell between two joists, breaking his leg below the knee.

Mr. Geo. Browne, architect, of Winnipeg, is at present visiting in Ontario. He was so unfortunate as to have his library and other of his possessions burned in the fire which recently destroyed the Cauchon block. Having been absent from the city when the fire occurred, he escaped the horrible fate of some of the other occupants of the building, who lost their lives in the flames.

Mr. Adam Kaufman, of Baden, Ont., a pupil of Mr. Melrose, for several years principal of the G. T. R. art school at Stratford, Ont., was awarded first prize for Architectural and Mechanical Drawing at the Industrial Exhibitions at Toonto, London, Winnipeg and St. John N.B. since 1893 he has been awarded 6 1st prizes, 6 medals and 23 diplomas. Mr. Kaufman is now at the head of the Baden art school.

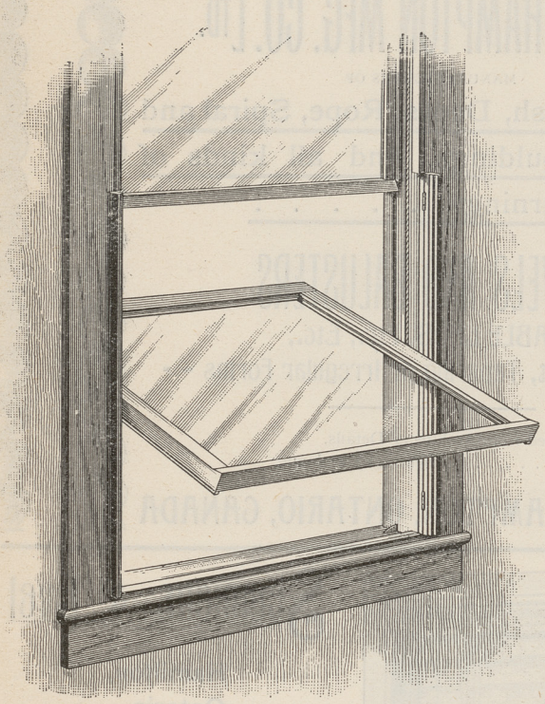
Several New Brunswick parties are seeking incorporation as the Northumberland Stone Co., with a capital of $10,000.

A sand stone quarry has been discovered at Mill Cove, N.B. The stone is said to be well adapted for building purposes.

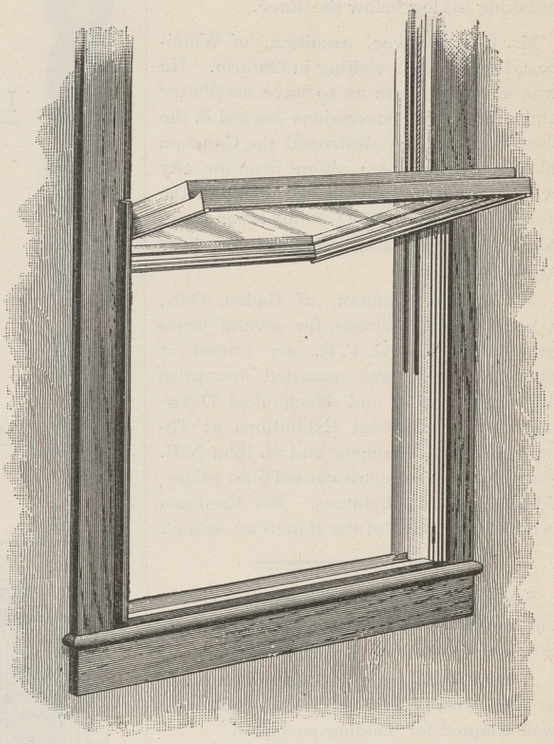
An effort is being made to reorganize the Hudson River Tunnel Co. and complete the work. Only 300 feet remain to be completed at the New York end, which $1,000,000 will complete, but $1,500,000 is required for the approaches. Probably the proposed bridge has prompted the movement to complete this hole in the ground, in which so much treasure has been sunk.

The Engineering News Publishing Co., of New York, has favored us with a copy of a work issued by it, entitled "A text Book on Plain Lettering," by Prof. H. S. Jacoby, Associate Professor of Civil Engineering in Cornell University. The author has given a great deal of attention to his subject, and the book contains many hints that will be found useful to the engineer, the architect, and the draughtsman. It is, we understand, the only work published on the subject. Price $3.

THE HEYDEBRAND SAFETY WINDOW



Showing the inside stops opened and the lower sash partially reversed for cleaning or for purposes of ventilation.



Both upper and lower sash arranged for ventilation.

Description of the Heydebrand Safety Window (Patented)

THE Heydebrand Safety Window is so designed that the OUTSIDE of BOTH windows can be easily cleaned from the INSIDE of the building, by a person standing on the floor. This can be done by lowering the sash to stationary bearings and revolving them on screw pivots inserted in the side of each sash, the pivots working in a grooved pulley. THIS WINDOW IS ALSO DESIGNED TO GIVE THE LARGEST POSSIBLE AMOUNT OF VENTILATION, by lowering both sash to bearings, turning to a horizontal position, and raising to centre of frame, thus admitting air through the entire opening.

In making frame, the pulley styles are grooved, the grooves being large enough to admit screw pivots inserted in sash. The grooves so made extend from the top of the frame down, stopping at a point sufficiently high as to allow either or both sash to be revolved on bearings made by ending of groove.

THE SASH SLIDES UP AND DOWN THE SAME AS IN THE OLD STYLE OF WINDOWS, and can be unhung and taken out, if desired, in much less time than it would take to remove the old style.

ABOVE IS A NEW INVENTION THAT IT WILL PAY ARCHITECTS AND INTENDING BUILDERS TO INVESTIGATE.

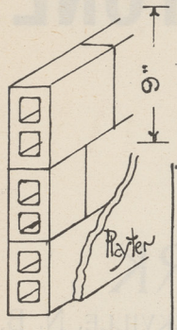
WORKING MODELS can be seen at RICE LEWIS & SON, LIMITED, TORONTO, and JAMES WALKER & CO., MONTREAL.

The Heydebrand Safety Window Co.

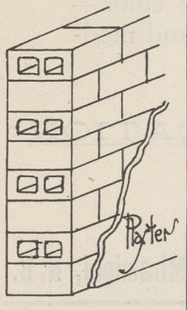
Main Office: Decker Building, NEW YORK

GENERAL AGENT FOR CANADA:

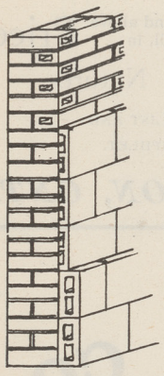
GEO. W. BOOTH - 55 Front St. West, Toronto.



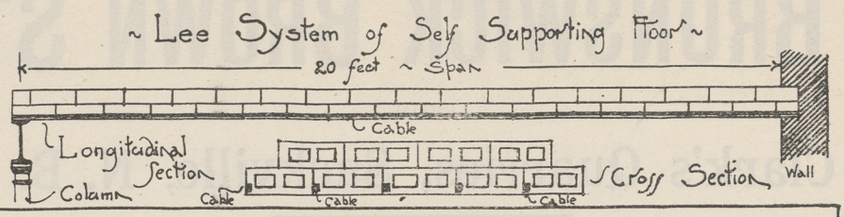
4" Partition



8" Partition



3 Different Systems of Farming



Fire Prevention

Is the only Protection against Fire. . . . . .

Porous Terra Cotta

IS

ABSOLUTELY FIRE-PROOF

Vermin, Dampness and the Inconvenience of Sound are also prevented by its use.

As desirable for a Dwelling House as for Public Buildings.

The NEW CANADA LIFE BUILDING in Montreal is the latest addition to the long list of buildings fire-proofed with our Terra Cotta.

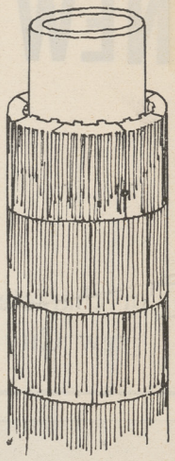
The Montreal Terra Cotta Company, Ltd.

N. T. GAGNON,
General Selling Agent.

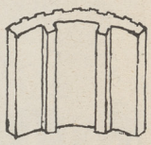
WORKS:
MAISSONEUVE, P.Q.

OFFICE:
86 ST. PETER ST.

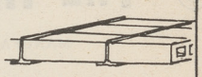
Montreal



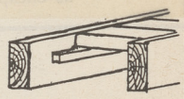
Fireproofing Columns



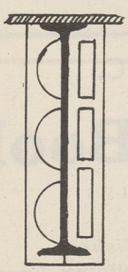
~ Section of Block ~



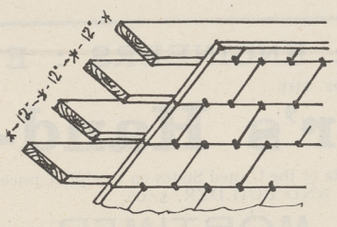
Terra Cotta Roofing



Terra-Cotta Deafening

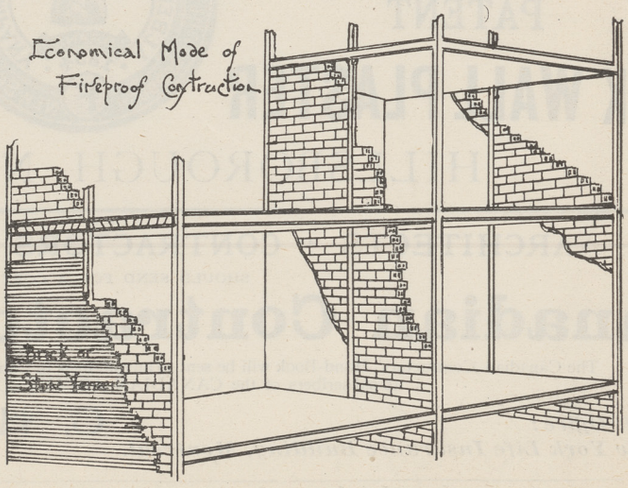


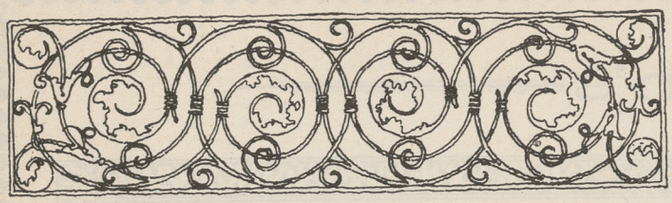
Beam Covering



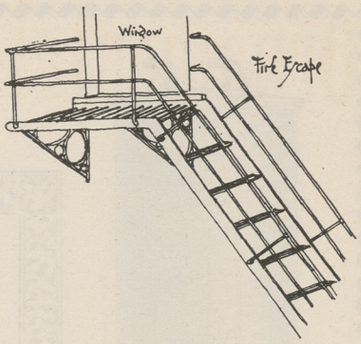
Ceiling Tiles on Wooden Joists

Economical Mode of Fireproof Construction





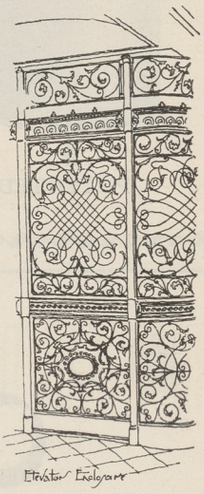
Wrought Iron Panel



Architectural Iron Work

Ornamental Brass Finishers
Iron and Brass Founders

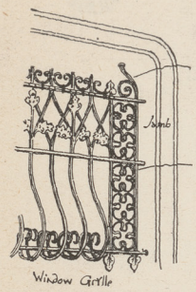
ESTIMATES FURNISHED ON ARCHITECTS' SPECIFICATIONS



Gas and Electric Fixtures

Heating, Plumbing and

Electric Supplies . . . .



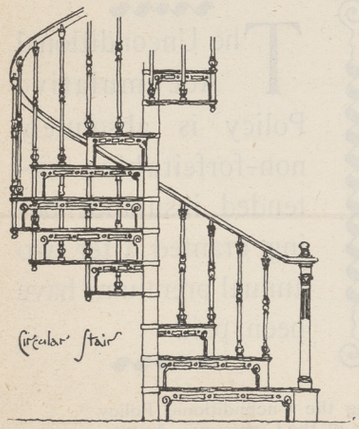
Inspection is invited of our
Model Show Room of Sanitary Goods.

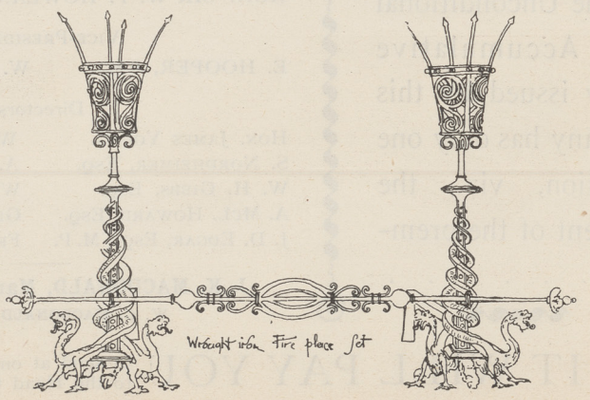
THE

Chanteloup Mfg. Co.

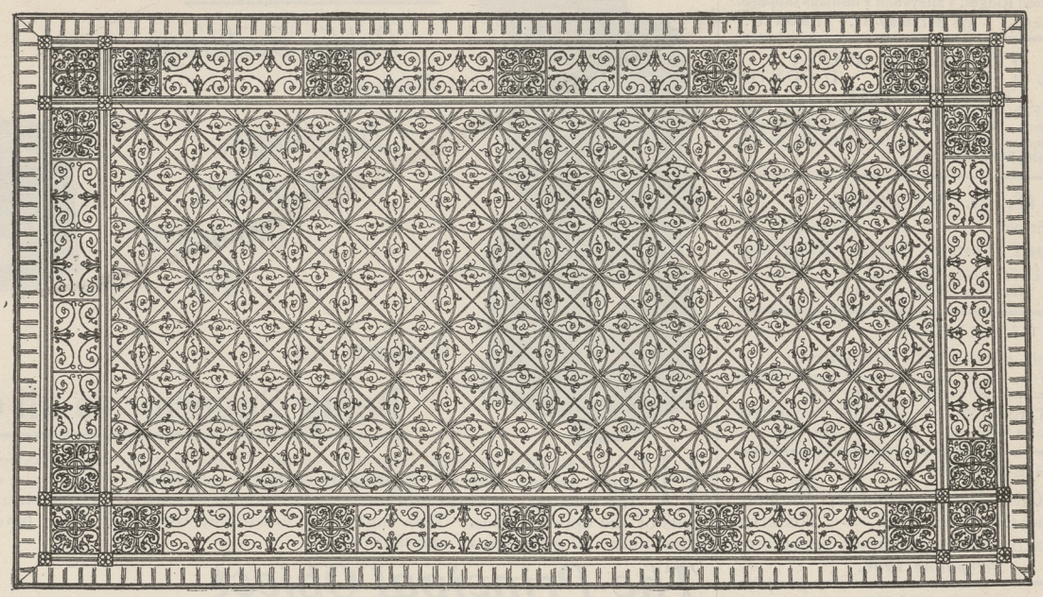
[LIMITED

593 Craig Street, MONTREAL



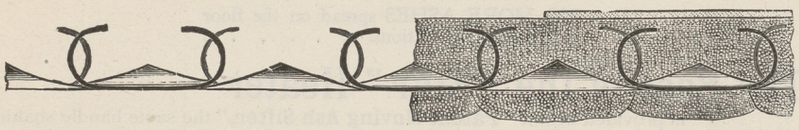


Ornamental - Embossed - Steel - Ceiling



Permanent, Durable, Fire-Proof, Ornamental — Suitable for All Kinds of Buildings

We have Canadian and American Designs in great variety—Quality and Fit unequalled.



HAYES' PATENT STEEL LATHING

Has an Everlasting Clinch

Fire, Water and Vermin Proof. . . . Easily Applied and Plastered.

ROCK FACED STEEL SIDING

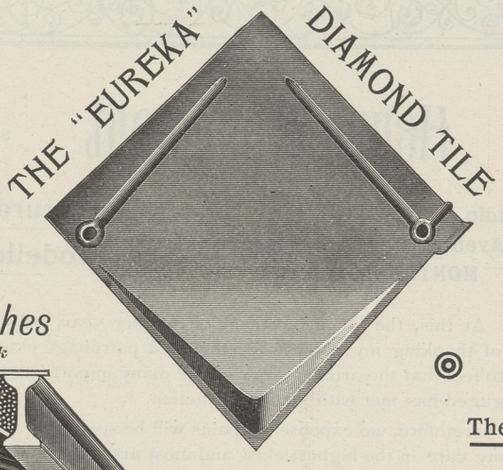
Cannot be distinguished from Solid Stone

Steel Side Wall Covering

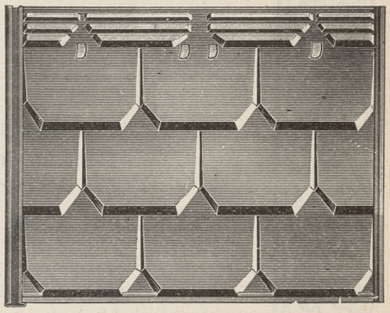
For - - Interior Work

25 patterns

Beautifully Embossed



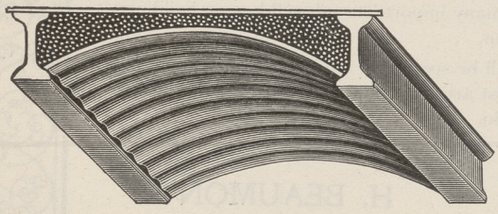
'EASTLAKE' STEEL SHINGLES



The Shingles that others try to imitate

Corrugated Steel Arches

Lighter and Stronger than Brick



Have you seen our New Fire-Proof Doors? Of Embossed Steel, Copper-Plated

We have the most substantial factory, the most extensive plant; have more capital and make better goods and more of them than any other concern.

We shall be pleased to quote you prices.

The oldest established concern of this kind in Canada

THE METALLIC ROOFING CO.

Cor. King and Dufferin Sts., TORONTO

Roofers.

ROBT. RENNIE & SON,
Terra Cotta Tile,
SLATE AND GRAVEL ROOFERS, &c.
Every description of Roofing Slate always on hand. Galvanized Iron Ridges, Valleys and Flashings supplied.
Telephone 2344. 378 Berkeley St., TORONTO.

H. WILLIAMS & CO.,
23 Toronto St. - TORONTO.
ROOFERS
With Slate, Felt and Gravel; also Williams' Flat Slate Roof—the best. We lay ROCK ASPHALT on cellar bottoms, floors and walks—the best material for this work. **Telephone No. 511.**

W. D. HUTSON,
56 Cecil Street, - TORONTO.
Slate and Terra Cotta Roofing,
ALSO FELT AND GRAVEL ROOFING.
Materials always on hand.

STEWART & KILLACKEY,
Felt and Slate Roofers,
Dealers in Felt, Pitch, Tar, Sheathing Paper, Carpet Paper, and all kinds of Building Paper.
Office, 27 Toronto St., cor. Adelaide, TORONTO.
Estimates furnished. Telephone No. 698.

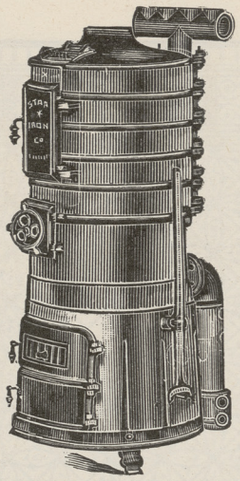
G. DUTHIE & SONS,
Terra Cotta Tile, Slate and Felt Roofers,
Cor. Widmer and Adelaide Sts., - TORONTO.
GALVANIZED IRON FURNISHINGS SUPPLIED.
Telephone 1936.

JOHN REGGIN
Slate, Tile, Felt and Gravel Roofer
Galvanized Iron Worker
Telephone 1056 - 34 VICTORIA ST., TORONTO
West End Office: 167 Brunswick Avenue.
Estimates Given. Repairing Promptly Attended to.

Douglas Bros.,
SLATE, TILE AND METAL ROOFERS.
Sheet Metal Work, Metallic Ceilings, Skylights, etc.
124 Adelaide Street West, - TORONTO.
Telephone 360.
138 Bank Street, - - OTTAWA.

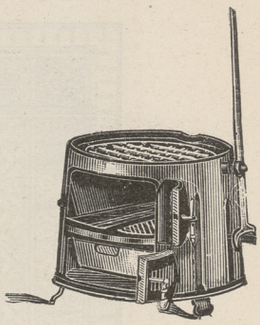
- - TUCKER & DILLON - -
Slate, Tile and Metal Roofers
SHEET METAL CORNICE WORKERS
CEILING WORK A SPECIALTY
78 ADELAIDE ST. W. - TORONTO.
Telephone 2585.

THE STAR HEATER



For Heating . . .

Public Buildings,
Stores,
Dwellings,
Churches,
Convents,
Etc.



Known as . . . . .

Being Superior to all others.

HAVING studied the most improved system of heating, we have succeeded in building a furnace with a "**syphon-injector,**" by the aid of which the circulation in the coils on the lower stories is increased by the speed of the circulation in the coils of the upper stories. This important invention, which we have patented, works admirably and gives great satisfaction.

The Principal Object

sought in a Hot Water Heater is a rapid and perfect circulation, which must necessarily depend upon the through distribution of the heat from the fire pot.

PATENT MOVING ASH SIFTER

NO MORE ASHES spread on the floor and soiling the sections. . . . . .

The Base of the "Star" Heater

is provided with a "**Patent Moving Ash Sifter,**" the same handle shaking the grate and sifting the ashes at the same time with close doors. It is so simple in its workings that any child can operate it. In fact, in every way, the Star Heater is of the very highest class.

STAR IRON CO.,
590 Craig St., Montreal.

ECCLESIASTICAL ART, viz., Pulpits, Fonts, Reredos, Screens, etc., receive special attention . . . . . .

Henry Beaumont

CARVER IN STONE, WOOD, MARBLE &c., &c

Residence and Studio,
1 Mitcheson Avenue,
MONTREAL

Architectural Sculptor and Modeller . .

At this, the commencement of another year, with great pleasure I avail myself of he opportunity of thanking my patrons for the kind patronage extended to me in the past, and I am highly gratified to feel that the artistic work of the many important and well-known buildings upon which I have been engaged has met with such satisfaction.

I may say that, as heretofore, no expense or pains will be spared by me in executing all architectural work entrusted to my care in the highest class and most artistic manner, which my many years in London, Eng., and other long experience enables me to do.

Sincerely wishing you the compliments of the season, I beg to remain,
Respectfully,
H. BEAUMONT.

Architects.

FRANK DARLING. HENRY SPROATT.
J. A. PEARSON.
DARLING, SPROATT & PEARSON,
Architects,
Members of the Ontario Association of Architects.
Mail Building, - *TORONTO.*

STRICKLAND & SYMONS,
ARCHITECTS
35 Adelaide St. E., - TORONTO

Henry Langley. *Chas. E. Langley.*
LANGLEY & LANGLEY,
ARCHITECTS
Members of the Ontario Association of Architects.
Canada Life Building, King St. W., TORONTO.

EDMUND BURKE & J. C. B. HORWOOD
ARCHITECTS
Union Loan Chambers,
28 AND 30 TORONTO STREET, - TORONTO.

JOSEPH CONNOLLY, R.C.A.,
ARCHITECT
OFFICES:
32 Adelaide Street East, - TORONTO.

EDWARDS & WEBSTER,
ARCHITECTS
Room 12, Canada Permanent Chambers, TORONTO.

DAVID ROBERTS,
ARCHITECT
Office, No 17 & 18 Union Block, Cor. Toronto & Adelaide Sts. } TORONTO.

Arthur R. Denison. Fred. Fellowes.
DENISON & FELLOWES,
Civil Engineers and Architects.
NORTH OF SCOTLAND CHAMBERS,
20 King St. West - *TORONTO.*

W. A. LANGTON,
ARCHITECT
Canada Life Building, - *TORONTO.*

G. M. MILLER,
ARCHITECT
18 King Street East, - *TORONTO.*

J. McBEAN,
Architect and Valuator,
Room 3, 67 Victoria St. - TORONTO.

G. WILLIAM KING,
ARCHITECT
9½ Adelaide Street East, - TORONTO.

JAMES A. ELLIS,
ARCHITECT
4½ Adelaide St. East - TORONTO.

J. C. FORSTER,
ARCHITECT
Member Ontario Association of Architects.
MEIRS BLOCK, - OWEN SOUND.

POWER & SON,
Architects and Building Surveyors,
KINGSTON, - ONTARIO.

Cut Stone Contractors.

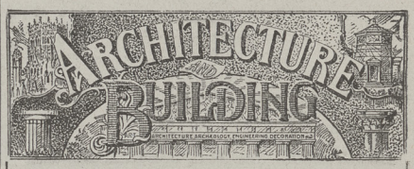
OAKLEY & HOLMES,
CONTRACTORS,
89 Wellington St. West, - TORONTO.
Estimates for Cut Stone, Brickwork, etc.

JAMES ISAAC. WILLIAM ISAAC.
ISAAC BROTHERS,
CUT STONE CONTRACTORS,
Office and Yard: Between Scott and Church Streets, on the Esplanade (south side), TORONTO

Ontario Lime Association
Manufacturers and Dealers in
Grey Lime, Guelph White Lime, Ontario Cement, Portland Cements Plaster Paris, Hair, Fire Brick, Fire Clay, Sewer Pipe, etc.
Telephone 920. ***118 Esplanade St. E., Toronto***

GILMOR & CASEY,
House and Sign Painters,
Telephone 149. 149 VICTORIA STREET.

GRANITE
Red and Rose Pink
Fine Rich Colours for . . . . .
BUILDING and MONUMENTAL PURPOSES
can be had at low figures from the
St. Phillipe d'Argenteuil Quarries.
Send for quotations and samples to
JOS. BRUNET,
Cote des Neiges, Montreal, Que.



PUBLISHED WEEKLY.
NEW YORK AND CHICAGO.

READ BY
ARCHITECTS,
BUILDERS,
CONTRACTORS,
DECORATORS,
ENGINEERS
and those contemplating building.

HANDSOMELY ILLUSTRATED.

A Profitable Advertising Medium.

Send for Sample Copy and Terms.

WM. T. COMSTOCK, Publisher,
23 Warren Street, New York.

NORWICH FOLDED PAPER FLOOR DEAFENER
PATENTED

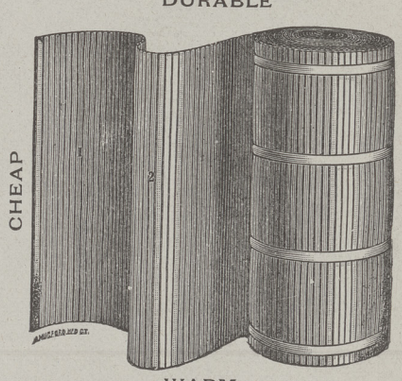
For Sheeting and Deafening in Houses, Offices, Buildings, etc.
Insulating Cold Storage Warehouses, Refrigerators and Ice Houses.

Advantages:
CHEAPNESS,
CLEANLINESS,
EVENNESS,
LIGHTNESS OF WEIGHT AND
RAPIDITY
WITH WHICH
IT MAY BE
HANDLED

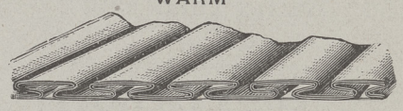
OUR new **Patent Folded Paper Floor Deafener** is the most practical and common sense Deafener ever placed between double floors, on account of its peculiar construction forming air chambers, which makes the best deafener known. It is just coming into use and has already been tested by a number of Architects, from whom a number of testimonials were sent us unsolicited on our part.

If you have an opportunity to use a deafener, we trust you will give this a trial, as we can assure you it will be no experiment if used properly. Our regular Carpet Lining will not answer for this purpose, so be sure the Deafener is used, and not the Carpet Lining, in contracts where our Deafener is called for.

DURABLE



WARM



It is put up in rolls of 450 square feet, each 36 inches wide, and can be supplied at the factory or bought from our agents at one cent per square foot. Any other information you may wish in regard to the material will be gladly furnished upon application to

S. A. LAZIER & SONS, BELLEVILLE, ONT. Sole Manufacturers for Canada

.. Warm and Comfortable Homes ..

NO LEAKS

SCREW - THREADED NIPPLE CONNECTIONS

Used only in

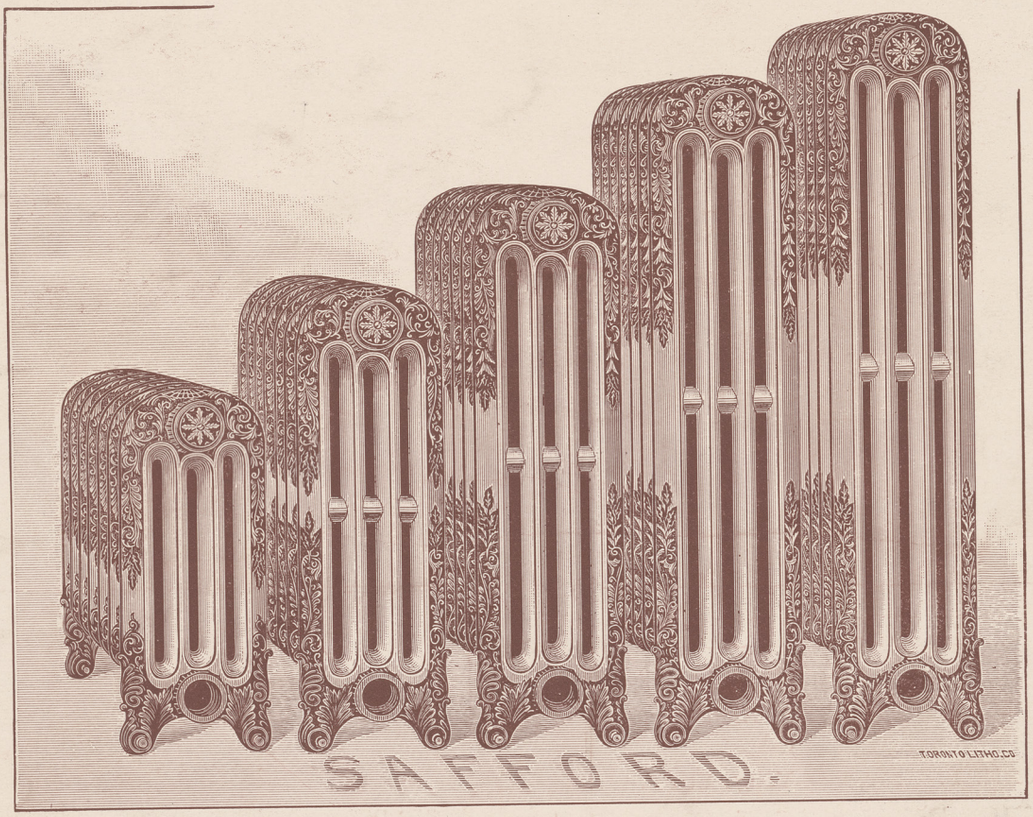
THE RESULT

When using the Latest and Most Scientific Invention in

HEATING

SAFFORD RADIATORS

For STEAM and HOT WATER



The Only Radiator made without Bolts, Packing or Washers. Cannot leak; every inch guaranteed surface. Only weigh six pounds to foot, and hold 14½ gallons of water per hundred feet of surface.

SOLE MANUFACTURERS

THE TORONTO RADIATOR MFG. CO., LTD.

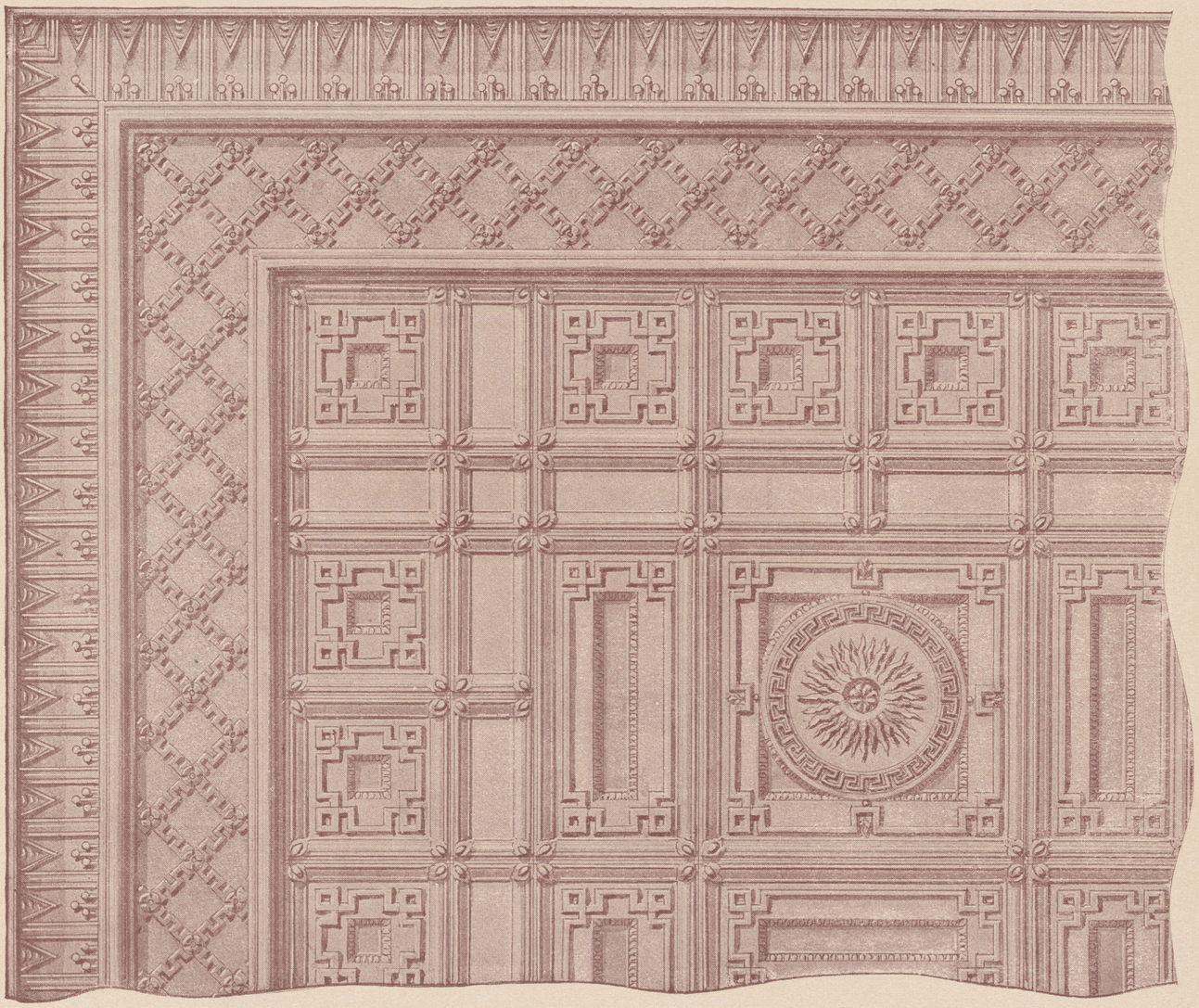
Toronto, Ont.

The Largest Radiator Manufacturers under the British Flag . . . . . .

BRANCHES { MONTREAL, QUEBEC, ST. JOHN, N.B. / HAMILTON, WINNIPEG, VANCOUVER, B.C.

57

METAL CEILINGS



REFERENCES

F. H. Herbert
Langley & Langley
G. M. Miller
E. J. Lennox
} Architects.

B. & H. B. Kent, 144 Yonge Street.
N. Rooney, 62 Yonge Street.
Ambrose Kent & Son, 152 Yonge Street.
Somerset Hotel, corner Church and Carlton Streets.
J. A. Devaney, hotel, Bloor St. West.

◇◇◇◇◇◇◇◇

Toronto, Dec. 16th, 1895.

Messrs. A. B. Ormsby & Co., City.

Dear Sirs: We have your letter of the 5th inst. and in reply would state that we are greatly pleased with the steel ceilings you put up in our new offices. We believe that we have the finest ceilings in town. We are constantly visited by architects each of whom has expressed admiration of the taste displayed, and we cheerfully recommend them in preference to any other kind of ceiling that we have ever seen.

Yours truly,
The Toronto Radiator M'fg. Co.
Jno. M. Taylor, Sec. and Mgr.

OUR STEEL CEILINGS

are permanent, fire-proof, and make the most ornamental interior finish. We have them in a great variety. Inspection invited . . . . .

MANUFACTURERS

Sheet Metal Cornices

Skylights, Roofing, etc.

SEND FOR CATALOGUE.

A. B. ORMSBY & CO.

Please Mention this paper

TORONTO, ONT.